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This publication represents four years of work by the Commission on Implications of Recent Research on Teaching. An article by Henry Hermanowicz, "Studies of Teaching and Their Impact on Future Developments in Teacher Education," (ED 024 624) reviews recent critical examinations of teacher education, new developments in the systematic study of teaching, and the resultant emergence of theories of teaching. One by Martin Haberman, "Relating the Study of Teaching to Other Dimensions of Teacher Education: A Proposal," discusses four critical characteristics of a teacher education program which determine its influence on students, then presents an overview of proposed content for a professional sequence. Four presentations report action programs in different institutions which have recently changed their programs to include a new emphasis on the analytical study of teaching: (1) "Conceptual Models for the Study of Teaching in the Syracuse Inter-University Program," Thomas Clayton, (2) "The Use of Interaction Analysis at Temple University," Edmund Amidon, (3) "The Study of Teaching Behavior by Prospective Teachers," Morton Waimon, and (4) "Supervisory Conferences and the Analysis of Teaching," Dorothy McGeoch and Margaret Lindsey. "The Uses of Research on Teaching: Implications and Recommendations" by Donald Sharpe focuses on problems of dissemination and application of research. a 158-item bibliography on the Study of Teaching is included. (JS)

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The Study of Teaching

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The Study Of Teaching

A Publication of the

Commission on the Implications of Recent Research in Teaching

The Association for Student Teaching

1967

Dean Corrigan, *Editor*

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Second Printing

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Dedicated

to a great teacher whose name is synonymous with the highest in American educational leadership, Dr. Florence B. Stratemeyer.

This publication includes modified versions of two papers which originally were presented at a conference honoring Miss Stratemeyer on her retirement from Teachers College, Columbia University. These papers and this publication are dedicated to her years of scholarship and service in teacher education.

Foreword

This volume is the culmination of four years of work by the Commission on Implications of Recent Research on Teaching of the Association for Student Teaching. The Commission was appointed by Dr. Donald Sharpe, President of AST in 1962, for the purpose of identifying and disseminating information on the implementation in teacher education programs of basic research on teaching.

At each of the national conferences during the four years of its existence the Commission sponsored programs designed to make participants aware of how the research on teaching was being used and could be used in teacher education programs. Extensive bibliographies were compiled and distributed along with copies of conference presentations.

When it became evident that a publication was needed to make available to a wider audience the results of the Commission's efforts, a unique means of financing the preparation of material was devised. The University of Rochester and the Association for Student Teaching jointly sponsored a Teacher Education Conference for which the papers included in this volume were prepared and read. The Association of Student Teaching owes much to the University of Rochester and to Dean William Fullagar who made the conference possible. It is also deeply indebted to the members of the Commission who planned and contributed so importantly to the conference and to this volume. But to Dean Corrigan, the chairman of the Commission on the Implications of Recent Research on Teaching and the editor of *The Study of Teaching*, must go gratitude and appreciation for creative leadership and untiring enthusiasm. Without his vision and persistence this report would never have been written.

Dorothy M. McGeoch
The Association for Student Teaching

Preface

Ideas about the study of teaching contained in this publication have far-reaching implications for the future of teacher education. Outstanding examples of these ideas are:

> Teaching implies action or behavior. Since teaching is behavior, it can be studied systematically.
>
> Because teaching depends on one or more human beings functioning in an interaction process, it requires the continuous adjustment of behavior.
>
> Once teaching is viewed as an interaction process, the content, methods, materials, media, and evaluation aspects of teaching gain a new vitality. They become **means** by which a teacher creates conditions which help students to learn. Teaching becomes the translation of knowledge — knowledge about subject, about pupils, about learning and teaching — into **action** through a personal teaching style.
>
> A fundamental premise of education is that behavior can be changed and improved. One of the essentials for the improvement of teaching behavior is to have an opportunity for the kind of analysis of teaching which will help prospective teachers learn behaviors which will in turn produce effective learning experiences for students.
>
> Student teaching in teacher education should offer opportunities for self-appraisal of the appropriateness of various styles of teaching for accomplishing specified objectives. Student teaching should be thought of as a time to **study** teaching as well as **practice** teaching. It is a time to put untried ideas to the test in a variety of real situations, and to study the results.
>
> The study of teaching requires specialized skills. Prospective teachers can learn these skills, and supervisors can be be trained to help preservice and inservice teachers to analyze behavior.
>
> Teacher education, therefore, should include experiences which prepare preservice and inservice teachers in the study and practice of **teaching**, as well as experiences which prepare supervisors in the study and practice of **supervision.**

These ideas and others are examined in seven papers dealing with different aspects of the study of teaching. In the first presentation, Henry Hermanowicz reviews the research on teaching and then comments on the application of the conceptual tools of the researcher to the study of teaching by prospective teachers. This is followed by a presentation by Martin Haberman in which the study of teaching is related to other phases of the process of becoming a teacher. The third, fourth, and fifth presentations report action programs in three different teacher education institutions which have recently changed their programs to include a new emphasis on the analytical study of teaching.

Margaret Lindsey and Dorothy McGeoch then examine the supervisory conference in a program which concentrates on the systematic study of teaching. In the final paper, Donald Sharpe challenges the profession to make better use of research on teaching.

There is a heavy emphasis on action programs in this publication. It is not intended, however, that the programs described should become models for new programs or that attempts should be made to apply the ideas presented to all situations. Each teacher education program must emerge from the context in which it will operate. The reporting of operational programs is based on the belief that studies of teaching will have more meaning to the larger audience interested in teacher education if they are reported in the language of the practitioner rather than the language of the researcher. The attention here is on what is being done with the research on teaching—how it is being *used.*

This publication reports only a small portion of the activity taking place under the heading of the study of teaching. An extensive bibliography is provided which will facilitate further investigation of the many ideas on this subject.

The members of the Commission will be satisfied if this publication provides enough provocative ideas to stimulate members of the teaching profession to critically examine the place of the systematic study of teaching in the future of teacher education.

Editor
DEAN CORRIGAN

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THE STUDY OF TEACHING

PART I

Impact of Studies of Teaching

In the opening presentation, Henry Hermanowicz reviews recent major studies in teacher education. He identifies in all reports a similar permeating theme which expresses uncertainty about what knowledge and curricular organization are necessary to the professional education of teachers. He views the current descriptive studies of teaching as essential prerequisites to subsequent investigations, but his examination reveals no studies that will, as yet, yield the broad, predictive generalizations that are the long-range goals of inquiry into teaching.

This is not to say that current studies are worthless; on the contrary, he states that descriptive studies already hold potential for improving teacher education if used with specific purposes in mind. The most obvious implication he sees is the use of descriptive studies by prospective teachers in the clinical analysis of teaching.

After saying this, he candidly sounds a precautionary note by pointing out that descriptive studies do not provide principles and generalizations which are useful in the control and resolution of teaching problems. They can only help teacher candidates classify elements of teaching and thereby better understand the teaching process. The readiness of teacher candidates for using the conceptual tools of researchers must be considered and adapted to individuals, and the nature of the research being used as a model for teacher candidates inquiring into teaching needs to be reassessed.

Looking to the future, Hermanowicz calls for continued study of teaching and the emergence of theories of teaching which will allow teacher education to assume the characteristics of a discipline – a discipline inextricably tied to the improvement of practice in its enterprise.

Studies of Teaching and Their Impact on Future Developments in Teacher Education[*]

HENRY J. HERMANOWICZ
Illinois State University

The 1960's and perhaps the 1970's in the history of American teacher education probably will be remembered as decades triggering intensified examination, criticism, and experimentation. Criticisms of teacher education along with recommendations for its improvement have emerged from various organizations and individuals. Debates on how best to prepare teachers have been given full-blown national attention, and diverse solutions have been presented. Some of these solutions will be examined briefly in this paper. However, I suspect that such debates will and should continue in the future, and I seriously doubt if any solutions to problems of teacher education will be completely satisfactory in our pluralistic society for any length of time. This paper represents one attempt to identify some central problems in contemporary teacher education while speculating about possible means of solution.

CRITICAL EXAMINATIONS OF TEACHER EDUCATION

Several of the major studies or reports aimed at the re-examination of teacher education, that have gained national attention, appear to carry a similar theme despite their varied and occasionally conflicting recommendations. This permeating theme is one which expresses uncertainty about what knowledge and curricular organization are necessary to the professional education of teachers. However, even the most critical of the studies concedes the desirability of some specialized or professional preparation for prospective teachers.

NEW HORIZONS' REPORT

One such major study resulted from the deliberations of several committees working as a task force for the NEA's National Commission on Teacher Education and Professional Standards. The final report of the task force, *New Horizons for the Teaching Profession*, offered a rather comprehensive series of recommendations for improving the present status of American teacher education The recommendations ranged from those dealing with the development and enforcement of professional standards for teachers to suggested guidelines for assuring quality in teacher preparation programs. Furthermore, the recommendations were designed with sufficient flexibility to permit and encourage considerable autonomy and experimentation within institutions preparing teachers.

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[*] A modified version of this paper originally was presented at a conference honoring Florence B. Stratemeyer upon her retirement from Teachers College, Columbia University.

It would be less than candid not to recognize that the report failed to receive the hoped for national attention and careful consideration. Hailed by some as a far-ranged plan for self-discipline of the teaching profession, the report was curtly dismissed by others. Because the central thesis of the report was one of professional autonomy and self-regulation in teacher education and certification, the recommendations were severely criticized as intentionally designed to perpetuate a monolith or the so-called "educational establishment." Regardless of one's point of view, however, an inherent dilemma of the New Horizons report was the insistence upon careful evaluation according to standards and the concurrent recognition of the need for a comprehensive definition of teacher competence ". . . in order to validate key professional procedures such as teacher selection, preparation, and licensure."[1]

Conant Report

The Conant study on teacher education represents a sharp disagreement with the New Horizons report and its proposals for professional autonomy with leadership exerted by the NEA. While his suggested programs for the preparation of elementary and secondary school teachers include certain education courses as desirable, Conant's recommendations are deliberately designed to promote freedom of experimentation in teacher education.. Indeed, Conant characterizes his recommendations with the words "freedom" and "responsibility." Only student teaching should serve as a stipulated certification requirement for future teachers in each state, according to Conant. It is Conant's assumption that free but responsible institutional competition in teacher education programs will cause academic professors and education professors ". . . to join hands to enhance the reputation of their particular institution."[2] Clinical professors would be given the formidable task of assessing the relevance and value of various aspects of the total collegiate curriculum to students' teaching performance in student teaching. At the heart of Conant's recommendations lies his recognition that "How best can we prepare teachers?" is an open, empirical question. This recognition, in turn, follows his conclusion that "Professors of education have not yet discovered or agreed upon a common body of knowledge that they all feel should be held by school teachers before the student takes his first full time job."[3]

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[1] Margaret Lindsey (Editor). New Horizons for the Teaching Profession: A Report of the Task Force on New Horizons in Teacher Education and Professional Standards. Washington, D. C.: National Commission on Teacher Education and Professional Standards, National Education Association, 1961, p. 226.

[2] James B. Conant, The Education of American Teachers. New York: McGraw-Hill Book Company, Inc., 1963, p. 217.

[3] Ibid., p. 141.

Koerner's Criticisms

Perhaps the most sarcastic critique of teacher education and of educationists in general has been James Koerner's *The Miseducation of American Teachers.* Koerner states that his book is like others in education with respect to expressing a point of view, and he admits that the book is ". . . filled with judgments, private evaluations, even prejudices if you like . . . "[4] He adds to this frank prelude the admission of genuine, although far from spectacular, efforts within the fields of education for internal improvement. However, his general conclusions about present programs and his recommendations for improving the future preparation of both common school teachers and educationists reflect rather harsh indignation and pessimism. Among Koerner's major "findings" cited in numerous places throughout his book and certainly underlying most of his thirteen recommendations for improving teacher education is the following:

> Education as an academic discipline has poor credentials. Relying on other fiields, especially psychology, for its principal substance, it has not yet developed a corpus of knowledge and technique of sufficient scope and power to warrant the field's being given full academic status.[5]

A Re-Appraisal

A fourth and final study used here to reinforce my initial point about knowledge uncertainty in professional teacher education is one which grew out of a conference devoted to a re-appraisal of teacher preparation. The conference, sponsored by the Fund for the Advancement of Education, was held at the Center for Advanced Study in the Behavioral Sciences in the summer of 1960. Conference participants consisted largely of persons who had been involved in teacher education projects sponsored by the Fund.

A summary of the conference included eleven critical charges directed at professional aspects of teacher education and the conferees agreed on the following points:

> Teacher preparation ought to include, in addition to liberal education: (1) specialized knowledge of the subject to be taught, (2) professional knowledge, which includes understanding of the role of the school, contributions of the behavioral sciences, and an appreciation of the components of the educational process, (3) practice teaching — under apprenticeship or internship, but always under wise guidance and direction, and (4) unifying theory.[6]

In addition, four other major agreements or recommendations were given as the conference summary. These included: (1) devoting greater attention to examining teaching acts as representative syntheses of knowledge, values, and instructional methods, (2) encouraging greater experimentation in various means of intellectual inquiry, such as seminars and independent study, as possible substitutes for formal courses, (3) exploring alternative and more flexible procedures and requirements for teacher certification, and (4) pursuing depth studies of the areas presumed to be essential to the professional education of teachers.[7] This last recommendation was also repeated in the summary of the conference as a critical charge against teacher education, "no respectable basis for professional education is likely to exist until studies in depth are undertaken by responsible scholars to validate content."[8]

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[4] James D. Koerner, The Miseducation of American Teachers. Boston: Houghton Mifflin Company, 1963, p. 4.

[5] Ibid., p. 17.

[6] Elmer R. Smith (Editor), A Re-Appraisal of the Professional Aspects of Teacher Education. Report of a Conference Sponsored by the Fund for the Advancement of Education at the Center for Advanced Study in the Behavioral Sciences, Palo Alto, California, June 22-August 20, 1960, Mimeographed Pre-publication Copy, pp. 15-16.

STUDIES COMPARED

Two of the foregoing studies involved the collaborative efforts and decisions of groups composed largely of educationists. On the other hand, the reports by Koerner and Conant cannot be interpreted as reflecting the point of view of educationists *if* such a point of view really exists. In fact, the pluralism, the self-criticism, and considerable experimentation that Conant is so desirous of encouraging in teacher education already exist, despite various state certification requirements that he considers obsolete and excessively prescriptive. It would be naive not to recognize that the recommendations of the reports involve conflicting strategies for shifts in decision-making power relevant to the education and licensure of teachers. Apparently the future of teaching as a profession is also viewed differently in the reports cited. Despite such diversity, none of the reports expresses satisfaction with the present national status and nature of teacher education. All four suggest the necessity for experimental approaches toward improving teacher education. And to put it diplomatically, each of the reports indicated concern and uncertainty with respect to what knowledge is pertinent to the professional education of teachers.

Unfortunately, considerations for the possible development of knowledge particularly germane to teaching were at best tangential in the four reports. A major recommendation of the New Horizons report was one for the development and implementation of research for the practitioner, although the nature of such research was not given in any detail. The Fund-sponsored conference report along with Koerner lamented the lack of a "unified theory" for teacher education, but the nature of such a theory, its derivation, and its validation were matters left without sufficient exploration. While Koerner debunked what he considered rather pedestrian attempts at scientism in education, he insisted that education has failed to merit academic status because of a lack of valid knowledge and research methodology. Koerner offered no suggestions as to how such a body of knowledge or research methodology might be developed.

Conant, on the other hand, preferred not to entertain the possibilities of research which might yield broad, scientific generalizations and theory directly relevant to the phenomenon of teaching. Instead, Conant critically examined the roles of the various disciplines that are often considered foundational to educational practice. These disciplines he viewed as analogous to sciences considered basic to medical practice but not as fully developed or apparently relevant to educational practice, as those of the medical sciences are to medical practice. To Conant, the most promising contribution to the acquisition of substantive knowledge relevant to teaching lies with further developments in experimental psychology.[9] In other words, Conant sees the possibility of certain "educational sciences" (primarily psychology) developing broad generalizations and theory from which controls or diagnoses of the teaching-learning process eventually may be made.

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[7] Ibid., pp. 16-18.

[8] Ibid., p. 13.

Although given consideration in two of the reports cited, it seems strange that the need for scientific study of the phenomenon of teaching itself did not command conspicuous unanimity among the studies. Perhaps there is legitimate reservation and doubt as to whether teaching can be studied scientifically. Most educationists, I suspect, would agree that problems and acts of teaching are amenable to scientific study. The meaning of "scientific" as used in this paper shall be based upon Conant's own definition of science: "an interconnected series of concepts and conceptual schemes that have developed as a result of experimentation and observation and are fruitful for further experimentation and observation."[10] Scientific study of teaching, then, would involve experimentation and observation of teaching that would yield an interconnected series of concepts and conceptual schemes. The nature of such concepts and conceptual schemes will be considered subsequently in this paper.

DIVERSE STUDIES OF TEACHING

There have been extremely varied attempts to study teaching. A substantial proportion of such past study has been directed at appraising teacher qualities or some aspect of teaching performance. Such studies have fallen short of contributing broad, predictive generalizations about teaching. In the preface of one of the more recently published books devoted to research on teaching effectiveness, the editors make the following statement:

> Few, if any, facts are now deemed established about teacher effectiveness, and many former "findings" have been repudiated. It is not an exaggeration to say that we do not today know how to select, train for, encourage, or evaluate teacher effectiveness.[11]

In addition, there have been difficulties among researchers in determining what kinds of inquiry could be legitimately designated as research on teaching. For example, should studies of how teachers perform school duties outside of the classroom, such as faculty committee participation or having conferences with parents, constitute research on teaching? In reviewing plans that served to outline the prodigious *Handbook of Research on Teaching*, Gage reported the committee agreement that an investigation must deal with certain central variables in order to be considered research on teaching. Three categories of such central variables were identified: (1) teaching methods, (2) instruments and media of teaching, and (3) the teacher's personality and characteristics. Gage also described variables often found in investigations that the handbook committee considered neither necessary nor sufficient as bases for qualification as a study on teaching. These variables included social interaction and the social background of teaching. Other considerations, such as subject matter and grade level, could be held as constants or serve as key variables in research on teaching.[12] This rather liberal delineation of research on teaching at least narrowed the foci of study to what the teacher does or uses in acts of teaching, or on teacher characteristics that may have relevance to teaching.

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[9] James B. Conant, Two Modes of Thought. New York: Trident Press, 1964, p. 89.

[10] James B. Conant, Science and Common Sense. New Haven: Yale University Press, 1951, p. 25.

[11] Bruce J. Biddle and William J. Ellena (Editors), Contemporary Research on Teacher Effectiveness. New York: Holt, Rinehart and Winston, 1964, p. vi.

Even with the foregoing limits established to designate investigations as research in teaching, the phenomenon of teaching may be studied at different levels. Meux and Smith identify three such levels of inquiry: (1) a purely descriptive study of teaching, (2) a correlational study, and (3) a study designed to discover generalizations.[13] The first level of inquiry is one intended simply to describe and classify teaching behaviors so that the phenomenon of teaching can be better understood. Because the approach is one which attempts to describe, rather than evaluate or gather, correlative data of the phenomenon, it is a study in the sense of "natural history." The second level of study is one with the purpose of establishing correlations between certain designated variables relevant to the phenomenon under investigation. Such has been the principal approach to studies of teacher effectiveness previously mentioned. For example, pre- and post-test results of students' achievement tests may be correlated with observer's judgments of certain teacher behaviors in the classroom. The last type of inquiry is essentially that of an experimental study specifically designed with sufficient controls to discover cause-effect relationships, or broad, predictive generalizations within the phenomenon.

Smith, Meux, and others serving as research collaborators, are convinced that descriptive studies represent the most fruitful approach to investigating teaching at the present time. The primary reason for this conclusion, according to these researchers, is that too little is known about the nature of teaching to warrant the use of the other research approach identified. Realizing that such descriptive studies are often dismissed as unimportant, Smith offers the following justification for them:

> If very little is known about a phenomenon, the way to begin an investigation of it is to observe and analyze the phenomenon itself. It must be observed, analyzed, and classified into its various elements. Until the

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[12] N. L. Gage (Editor), Handbook of Research on Teaching. Chicago: Rand McNally & Company, 1963, from the preface.

[13] Biddle and Ellena, op. cit., p. 128.

> factors which are involved in the phenomenon are understood and described, there is little likelihood that significant correlational, predictive, or casual studies can be made. In other words, the state of knowledge about a given phenomenon dictates to some extent the kind of inquiry of it which is appropriate.[14]

It would be reasonable to infer that these researchers regard the use of the other two levels of inquiry in past studies of teaching as premature, thereby casting considerable doubt upon the validity of any findings resulting from such studies. Furthermore, if we have so little knowledge about teaching, this may explain our continued dependence upon such fields as group dynamics, learning theory, and philosophy in providing descriptions or explanations of teaching.

Apparently, there are no studies of teaching at present that will yield the broad, predictive generalizations that are a long-range goal of inquiry into teaching. Descriptive studies of teaching, however, serve as essential prerequisites to subsequent investigations which may yield such generalizations. For many researchers, leads to further inquiry serve as the primary function of such study. But if descriptive studies provide various means of understanding the complex phenomenon of teaching, then such studies are important in their own right. In addition, such investigations may provide possibilities for the improvement of teacher education.

CLINICAL STUDIES OF TEACHING

A wide range of implications for teacher education may be drawn from descriptive studies of teaching. No attempt will be made here to explore the variety of such possibilities. It seems obvious, however, that use of such studies by prospective teachers in clinical analysis of teaching would offer considerable promise for experimentation in teacher education. Here I must acknowledge the work and proposals of Waimon, who several years ago started experimenting with such an approach and has continued efforts along these lines. [15]

The term "clinical" has become rather fashionable in various educational circles, particularly since Conant used it in describing proposed new roles of education professors. It is with some reluctance that I use the term in this paper, for fear of having the proposal misinterpreted. However, the word is quite appropriate for what I have in mind. Clinical, by conventional definition, means pertaining to a clinic wherein teaching is done with the actual circumstances and subjects or patients being present. Clinical studies of teaching, then, would be teaching-learning situations involving actual acts of teaching that are subject to analysis and inquiry. Of course, these types of learning situations have

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14. B. Othanel Smith and Milton O. Meux, and others. A Study of the Logic of Teaching. Urbana, Illinois: Bureau of Educational Research, College of Education, University of Illinois, 1963, p. 8.

15. Morton D. Waimon, "Feedback in Classrooms: A Study of Teacher Corrective Responses." Journal of Experimental Education, 30:313-316, June, 1962 and "The Nature of Teaching: Implications for Teacher Education," Concern for the Individual in Student Teaching. Aleyne C. Haines (Editor). Forty-second Yearbook of the Association for Student Teaching. Cedar Falls, Iowa: The Association, 1963, pp. 79-97.

been regarded as an integral part of teacher education for years. A central function of professional laboratory experiences has been to use actual classrooms as laboratories for inquiry and testing ideas about teaching. Indeed, we can find the rationale for such direct study of teaching described by Dewey in 1904.[16]

It seems, however, that those of us in teacher education are now being offered additional opportunities to make such laboratory experiences and direct studies of teaching more systematic, rigorous, and fruitful. Descriptive studies of teaching attempt to conceptualize the complex phenomenon of teaching. These studies provide us with ways of ordering various elements or components of teaching and thus offer cognitive maps for trying to understand the phenomenon. Such maps are a result of the direct, systematic study of teaching itself, rather than derivatives from fields which may or may not have relevance to the phenomenon of teaching. The possibilities of using descriptive studies and cognitive maps merit the careful and critical attention of teacher educators. After discussing his own system of classroom interaction anlysis, Flanders states:

> Perhaps this is a point to risk a prediction, which is that teacher education will become increasingly concerned with the process of teaching itself during the next few decades. Instead of emphasizing knowledge which we think teachers will need in order to teach effectively, as we have in the past, we will turn more and more to an analysis of teaching acts as they occur in spontaneous classroom interaction.[17]

PRECAUTIONS NECESSARY

While descriptive studies of teaching offer exciting possibilities for experimentation in teacher education, certain precautions should be considered. Studies of teaching serve only to develop classifications of teaching behavior for greater understanding of the phenomenon. This type of research is not designed for discovering cause-effect relationships or predictive generalizations about teaching. Having prospective teachers utilize such studies in their own study of teaching should enable them to learn how to classify and perhaps better understand teaching acts. The research procedures and their findings, however, do not provide teacher candidates with principles or generalizations about teaching which are useful in the control and resolution of teaching problems. Principles or hypotheses for coping with instructional problems must come from other sources and by means other than descriptive studies of teaching.

A second precautionary note is one centering on the readiness of teacher candidates for the learning experience of using descriptive studies of teaching. The researchers have developed such inquiry as a result of certain backgrounds of knowledge (perhaps past failures), some speculative hunches, and a host of other conditions that prospective teachers probably will not bring to the learning situation. In the attempt to have the teacher candidates engage in genuine intellectual inquiry comparable to the researchers, inadvertently we may simply be training them to learn how to classify teacher behaviors reliably, use observation guides efficiently, or whatever the methodological approach demands. Unintentionally, we might be preparing useful graduate assistants but not necessarily better teachers.

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[16] John Dewey, "Relationship of Theory to Practice in Education." The Relationship of Theory to Practice in the Education of Teachers. Charles A. McMurry (Editor). Third Yearbook of the National Society for the Scientific Study of Education, Part I. Chicago: University of Chicago Press, 1904, pp. 9-10.

[17] Ned A. Flanders, "Intent, Action and Feedback: A Preparation for Teaching," Journal of Teacher Education. 14: 260, September, 1963.

A third area of precaution relates to the nature of the research being used as the model for teacher candidate understanding of an inquiry into teaching. Descriptive studies of teaching deal with or focus upon selected dimensions of teaching. The study of B. O. Smith and his associates, for example, centers upon the logical nature of teachers' verbal behavior. Other studies of teaching may focus upon affective rather than cognitive dimensions of teaching. Furthermore, because such descriptive studies have little or no precedent, the attempts at classification and understanding of teacher behavior may reflect varying degrees of imprecision and ambiguity. Teacher candidates employing such research schema should recognize the status and nature of the inquiry so that it is not misinterpreted as an infallible, comprehensive explanation of teaching. Unless this is done, intellectual closure rather than a spirit of continued, open inquiry might be an end result.

Of course, one can employ any one or a number of classification systems, such as those fashioned by Flanders-Amidon and Waimon, and their uses will be described in subsequent papers. On the other hand, you can try to develop your own system for analyzing teaching if none presently available suits you. I am not making this suggestion facetiously nor do I mean to depreciate present systems being used in analyzing teaching. Indeed, one can spend a lifetime developing such tools and substantiating their validity and power for analyzing teaching as well as their usefulness in teacher education. The fact remains that whether such systems and processes of employing them are instrumental in developing certain cognitive and affective behaviors among teachers and prospective teachers is itself an open, empirical question. It is a question, however, that should fascinate most of us in teacher education.

Despite the precautions I have described, the use of descriptive studies of teaching or other classification systems for the clinical study of teaching seems to hold much promise for teacher education. Such approaches could be used as foundations for understanding teaching from which we could help teacher candidates learn how to make wiser decisions and more fruitful hypotheses toward the solution of instructional problems. Such approaches may be somewhat analogous to the earlier case study approaches to the study of law and business. Perhaps the clinical study of teaching by teacher candidates will make an impact upon teacher education comparable to that of the case study approach upon business and law education.

However, descriptive studies of teaching and their use by prospective teachers would represent only one side of the coin in teacher education improvement. Descriptive studies, as mentioned previously, are preliminary to further investigations of which the major goal is discovery of broad, predictive generalizations. Such broad generalizations could then lead to theories of teaching. Theories of teaching, in turn, could offer substantial possibilities for the improvement of teacher education – possibilities that go to the heart of the knowledge dilemma of professional teacher education discussed in the opening section of this paper.

THE EMERGENCE OF THEORIES OF TEACHING

As indicated in sources mentioned previously in this paper, educational literature often contains pleas for a "unified theory" or a "unified theory of teacher education." It is difficult to determine what is meant or requested by such pleas. I suppose that the demand for a unified theory of teacher education is primarily a concern regarding discerned disjointedness in programs for educating prospective teachers. Calling for a unified theory of teacher education, then, is largely requesting that a more coherent pattern of teacher education be established with clear relationships of goals, content, procedures, and general organization given in such a plan.

Demands for a "unified theory" are somewhat more bewildering. Does such a request suggest the necessity or desirability of incorporating all of the specialized areas, content, and research of the total educational enterprise into one gigantic, logically constructed explanation of the enterprise? If so, the suggestion is completely unrealistic. It is inconceivable, for example, that all of the diverse aspects of the social sciences be subsumed in a monolithic, comprehensive explanation of man's social environment. Why should we assume that such an explanation is possible for the diverse areas that comprise education? On the other hand, perhaps such a request suggests the possibility of a comprehensive explanation of teaching. Even a more modest expectation such as this is unlikely to materialize. Rather than the development of a single theory which will explain all forms of teaching regardless of differences in content, teaching goals, or levels of instruction, it is more likely that various theories of teaching will emerge in the future.

Of course, there are legitimate doubts even as to whether various theories can be developed with power to explain only limited forms or dimensions of teaching. When addressing himself to questions of knowledge employed in teacher preparation, Conant simply did not consider the possibility of deriving theories of teaching from the study of teaching itself. Moreover, in discussing problems of empirical-inductive inquiry he warns against misconstruing research which merely piles up narrow generalizations as contributing to wide scientific principles and theory.[18] Additional doubts are expressed in Nagel's analysis of systematic inquiry into social phenomenon:

> Many social scientists are of the opinion, moreover, that the time is not yet ripe even for theories designed to explain systematically only quite

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[18] James B. Conant, Two Modes of Thought. New York: Trident Press, 1964, p. 16-17.

> limited ranges of social phenomenon.[19]

Nagel further reviews methodological problems in the social sciences and points out the limited nature of already produced theoretical explanations or generalizations, as well as their questionable validity. However, his analysis concludes with the cautious but optimistic observation that

> . . . none of the methodological difficulties often alleged to confront the search for systematic explanation of social phenomena is unique to the social sciences or is inherently insuperable.[20]

THE NATURE OF THEORY

If the emergence of various theories of teaching is possible even for explaining limited aspects of teaching, how shall such theories be constructed? Perhaps at this point it would be helpful to examine the general nature of scientific theory. According to Brodbeck, a scientific theory is a deductively connected set of laws. A theory is dependent upon having a series of broad generalizations about the phenomenon in question. Furthermore, the generalizations must be related to each other in a coherent pattern or system. Generalizations are also called general facts, laws, or hypotheses. A scientific theory, then, is comprised of general facts, laws, or hypotheses related to each other in a systematic, non-contradictory order. Within the theory each generalization states how something is lawfully connected with something else. Therefore, the theory describes and explains the phenomenon to which it is addressed. The theory also serves as a means of predicting certain consequences in the phenomenon in view of certain given antecedents. The theory may be considered a huge, internally consistent, if-then statement.[21]

In a paper devoted to her inquiry into the nature of teaching, Maccia describes three characteristics necessary for a scientific theory. These characteristics plus a terse explanation for each are as follows: (1) formal coherence – i.e., systematic relationship of the statements which comprise the theory, (2) observational verification – i.e., correspondence of the statements within the theory to that which can be experienced, and (3) observational predictiveness – i.e., derivation of statements from the theory about what will happen in experience.[22]

The foregoing sketchy anatomy of scientific theory borrowed freely from Brodbeck and Maccia offers clues as to the structure of future theories of teaching. It also helps clarify the nature of present descriptive studies of teaching. Attempting to develop descriptive classifications rather than correlational or casual data, the researcher may identify a series of behaviors exhibiting common characteristics. He may then group such behaviors in one category because of their common characteristics. The category may be designated by some term with appropriate connotations such as "opining," "integrative," or "controlling" as has been the case in such studies. The researcher may have as many of these categories as he deems necessary to handle his data. Such categories and their indentification labels designating the set of characteristics or descriptive features are the *concepts* invented by the researcher.

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[19] Ernest Nagel, The Structure of Science. New York: Harcourt, Brace and World, Inc., 1961, p. 448.

[20] Ibid., p. 503.

[21] May Brodbeck, "Logic and Scientific Method in Research on Teaching." Handbook of Research on Teaching. N. L. Gage (Editor). Chicago: Rand, McNally and Company., 1963, pp. 68-69.

[22] Elizabeth Steiner Maccia, "Instruction as Influence Toward Rule-Governed Behavior." A Paper Presented to the Ninth ASCD Curriculum Research Institute, Eastern Section, Washington, D. C., March 2, 1964, (Mimeographed), p. 2.

Concepts are the stuff which generally distinguish one field of knowledge from another. The concepts emerging from purely descriptive studies of teaching, however, may be short lived. Concepts may be analyzed with respect to their *meaningfulness* and *significance*, according to Brodbeck. Concepts are said to be *meaningful* if they are sufficiently defined in terms of the observable characteristics or descriptive features which they designate. Concepts are *significant* only when they are connected with other concepts; that is, when they enter into generalizations or laws.[23] Since the discovery of connections between concepts is not the intent of descriptive studies of teaching, the significance of concepts resulting from such studies is dependent upon subsequent investigations.

Multiple Theories of Teaching

Multiple theories of teaching will result from the efforts of the researchers and theorists in education as they turn more of their attention to the examination of teaching itself. Each theory of teaching will offer explanations for limited aspects of teaching. The particular nature of such theories and the aspects of teaching they will explain are matters for conjecture. Variations in theories might depend upon the nature of subject matter in question or upon the particular kind of children to be taught. For purposes of illustration, Gage identified four categories possible for such diverse theory development. These included the possibility of different theories for (1) types of teacher activities, (2) types of educational objectives, (3) components of the learning process, and (4) families of learning theory.[24]

Bruner has argued for the necessity of a theory of instruction also. Whether he sees the emergence of multiple instructional theories can only be inferred from his writings. However, he seems to suggest the addition of another dimension to such theories. He would not be satisfied with instructional theories which, like learning theories, provide after-the-fact description of the phenomenon. He insists that such theories be prescriptive and normative in nature. Or, to put it in his words:

> A theory of instruction, in short, is concerned with how best to learn what one wishes to teach, with improving, rather than describing learning.[25]

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[23] Brodbeck, op. cit., pp. 56-57.

[24] N. L. Gage, "Theories of Teaching." **Theories of Learning and Instruction**. Ernest R. Hilgard (Editor). Sixty-third Yearbook of the National Society for the Study of Education, Part I. Chicago: University of Chicago Press, 1964, pp. 275-281.

[25] Jerome Bruner, "Some Theorems on Instruction Illustrated with Reference to Mathematics," in Ernest R. Hilgard (Editor), op. cit., p. 307.

Bruner further insists that such theories involve a congruence of learning theory, developmental theory, and knowledge of the subject matter to be taught. He probably would not settle for less than a multidisciplinary convergence of knowledge upon the solution of instructional problems and curriculum improvement. The convergence of learning theories and knowledge of developmental psychology with knowledge about the nature of teaching is, however, dependent upon investigation of teaching. That is, the relevance and points of convergence of such knowledge to teaching are indeterminate since inadequate knowledge exists about the phenomenon of teaching itself. It appears that Bruner would like an instructional theory subsumed as an integral part of curriculum theory. Thus, the approach would be a grand strategy for improving the teaching-learning process in all phases of the curriculum. The proposal of Bruner may represent an ideal which is as difficult to dismiss as it is to attain. In the long run, perhaps we cannot settle for anything short of such an ideal.

Nevertheless, the development of multiple theories of teaching will have significant impact upon teacher education and the enterprise of education in general. Such theories will result from cumulative, systematic inquiry into the nature of teaching. The theories will be comprised of related generalizations of a predictive nature. The concepts, generalizations, and theories will constitute a corpus of knowledge with demonstrable power to describe, explain, and control various dimensions of teaching. Such knowledge ultimately will become the principal substantive content of the professional aspect of teacher education. Such knowledge also will provide greater clarification of the points of convergence and relevance of ancillary disciplines like psychology, sociology, and philosophy to the educational process.

Education then will have developed its own modes of inquiry, a system of interconnected concepts and conceptual schemes, and fundamental bases to guide practice as well as further investigations. In short, education will assume the characteristics of a discipline in its own right, but a discipline inextricably tied to the improvement of practice in its enterprise. The future of teacher education may well reside with the nature of such theories of teaching, the knowledge which they represent, and how wisely those of us in teacher education can put such knowledge to use.

IN SUMMARY

Despite conflicting strategies for shifts in decision-making power relevant to the education and licensure of teachers, various critical examinations of teacher education show certain areas of agreement. The need for experimentation in teacher education and uncertainty with respect to what knowledge is pertinent to the professional preparation of teachers are among such areas.

Newer developments in the systematic study of teaching have emerged in the past decade. Such studies may be viewed as points on a continuum starting with purely descriptive studies of teaching but advancing to controlled investigations which yield broad generalizations about the phenomenon. It is suggested that present descriptive studies of teaching might be useful as a means of having prospective teachers engage in clinical study of teaching, although certain precautions were cited. Such experimental efforts may be somewhat analogous to the case study approach which had considerable impact upon improving business and law curricula.

The general nature of scientific theory was examined to suggest the possible anatomy of a theory of teaching. It was argued that controlled investigations of teaching subsequently will yield broad, predictive generalizations. Such generalizations will be fashioned into multiple theories rather than a single, comprehensive theory of teaching. Each theory of teaching will be relevant to limited aspects or dimensions of teaching. The generalizations and theories will constitute a corpus of knowledge with demonstrable power to describe, explain, and control various dimensions of teaching. Such knowledge may offer clarification of the points of convergence and relevance of ancillary disciplines like psychology, sociology, and philosophy to the educational process. Such knowledge ultimately will become the principal substantive content of the professional education of teachers.

PART II

Context for the Study of Teaching

In his presentation Martin Haberman describes a proposed teacher education program in which he places the study of teaching in the context of a total program of teacher education.

Individualization, professional models, freedom, and help in the beginning phases of teaching are four characteristics which, according to Haberman, determine the extent of influence a teacher education program has on its students. His proposed program includes six areas of study derived from observing the performance of successful teachers. They are (1) the nature of subject matter, (2) the nature of children and youth, (3) the nature of the educational setting, (4) the nature of learning, (5) the nature of teaching, and (6) the nature of self. For the purpose of showing what one organizational plan focusing on these areas would look like, Haberman describes practices which could be employed to develop the required behaviors. Then he describes his proposed program in terms of a professional sequence. At this point, Haberman is quick to state that his listing of the six "Jim Dandy" sources of knowledge does not constitute a description of a teacher education program. He emphasizes that the study of teaching is a very personal process involving four very important components: (1) integration of areas of knowledge, (2) personalization, (3) application of ideas in real situations, and (4) the forming of generalizations which can be acted upon and extended.

Relating the Study of Teaching to Other Dimensions of Teacher Education: A Proposal[*]

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Although the discussion which follows will deal only with the program of teacher education, it is necessary to note that such preparation cannot be appropriate if it is intended merely as training for schools as they presently exist. Schools must themselves be engaged in a constant process of modification and improvement and teachers must be prepared who can participate in and initiate such change.

There are four critical characteristics of the teacher education program which determine its influence on students. These will be discussed before proposing the actual content of the professional sequence. Following the overview of the professional sequence, suggestions are made regarding important conditions which affect the process of offering the proposed program.

CHARACTERISTICS OF THE PROGRAM

The degree to which a future teacher is influenced by his program of preparation is not simply a matter of the courses he takes. It is instead a function of four factors that can free him to learn or block his development as a teacher: (1) the degree to which his program of studies has been individualized, (2) the intensity of his contact with individuals whom he perceives as professional models, (3) the degree of freedom he has had in the course of his professional laboratory experiences and (4) the nature of the help he receives as a first-year teacher. These characteristics of the teacher education program directly influence what students learn, the attitudes they develop related to this learning and their ability to translate knowledge and feeling into practice.

INDIVIDUALIZED PROGRAM

The process of individualization is not only the means by which the student is pushed to the limits of his ability, but the means by which he has been made to feel personally involved and committed. The method of Peace Corps training exemplifies my point. Large numbers of volunteers are prepared but this preparation is conducted in small groups that stress the individual's commitment to his peers and to a great social cause. During their training Peace Corps volunteers are task-oriented rather than grade-oriented. They are learning particular skills and acquiring knowledge that will be immediately useful, rather than completing a series of courses for which they might see no purpose other than that these courses are required for certification or graduation. Their drive and motivation is internal rather than superimposed. But most of all, their preparation is perceived as the *beginning* of a period of *temporary* service rather than the *completion* of a series of accomplishments for which one is forever certified as a skilled practioner. Other important factors are living and working together during the period of preparation and the total spirit of commitment that develops when an individual identifies with a group that he perceives as self-enhancing. The preparation of dedicated teachers can also result from a similar demonstration of concern for the individual preservice student's needs, *his* perceptions, *his* problems, *his* abilities, and *his* contributions.

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[*] A modified version of this paper was discussed at a conference honoring Florence B. Stratemeyer upon her retirement from Teachers College, Columbia University, and at the meeting of Task Force Two of the School-University Teacher-Education Project in Chicago, October, 1964.

Focusing on the individual is not only an effective means of developing the commitment needed by teachers; it is also the best process for teaching students the concepts they will need to know and apply as beginning teachers. Examples of the questions which must be answered by teacher preparation programs are: Are the course requirements the same for all students regardless of their age, experience, previous coursework, or actual knowledge? Within given courses are the assignments the same for all students? Are the courses planned to be the same length for all students? Is the period of student teaching or internship the same length of time for all students? The basic point here is that rather than making special provisions for one or two individuals who are grossly different from the main body of students, all students should have "special" provisions made for them. The "regular" program should be characterized by the irregular manner in which it is offered to various students. This is not to say that there is no body of professional knowledge and behavior which is common to all teachers, but to recognize that students preparing to teach begin at different points, learn in various ways, and proceed at different speeds.

The education of a teacher is a process whereby each individual is offered numerous personal choices as he lives through a variety of experiences. Hopefully, this process results in his coming to terms with himself. There is, therefore, no mass method for preparing teachers. Any proposed program, regardless of size, must be organized to effect change in each student.

PROFESSIONAL MODELS

Substantial research evidence indicates that few students are changed in any important ways as a result of going to college.[1] Some experts explain this condition by pointing to college curricula which do not try to help students see purpose and application for their studies. Others point to the lack of commitment among students themselves.

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[1] H. Webster, M. B. Freedman and P. Meist. "Personality Change in College Students." The American College, N. Sanford (Editor). New York: Wiley and Sons, 1962.

The faculty whom the student encounters can affect his enthusiasm, his values, and his ways of seeing and knowing. As a result of working closely with college and public school personnel, many students preparing to teach merely reinforce their preconceptions and stereotypes; others actually change in the way they view school situations, in their conceptions of the teacher's role and in their perceptions of themselves as teachers. The most effective means for helping students to change is to place them into contact with mentors and guides – regardless of what they teach – who are themselves actively engaged in the process of searching, growing, and changing.

College students preparing to teach cannot be left in a state of apathy. On the contrary, they more than any other students must be influenced to become involved as active participants in the cause of educating children and youth. Since contact with persons who can serve as models is an important means of effecting student change, it is necessary to secure professional, dedicated college and public school staff who believe in the particular teacher education program being offered and who will influence students under their aegis to take on similar values.

DEGREE OF FREEDOM

In addition to an individualized program of studies and an opportunity to associate with positive personal models, students preparing to teach must have much direct experience in working with youngsters. The classrooms and schools in which students do their field work can be real "professional laboratories" only if students have the opportunity to experiment, to try, to test; to find out what will not work for them as well as to emulate the proven methods of their supervising teachers. This period of actual participation with youngsters (observation, tutoring, assisting, student teaching, interning) is one of the few times in their college careers that students can become actively and totally involved in the process of learning. Educators responsible for planning programs of teacher education must decide in which experiences students will be truly free to learn and at what point they must demonstrate the minimum competencies required of a beginning teacher. Unless this is done there can be no conscious planning regarding the areas in which the student is permitted to explore, to fail, to reflect, to try again.

One of the persistent problems related to field work is that there are never enough good cooperating personnel with whom to place students. Finding able, experienced teachers to work with students is an even greater problem in schools serving the urban disadvantaged since these schools frequently have large numbers of beginning teachers who cannot yet be given the responsibility for supervising others. It is an unfortunate paradox that the very schools which can serve as the best learning laboratories for educating urban teachers are frequently lacking in the personnel to help prepare the teachers needed for these schools. Since students must often be placed with less able teachers it becomes imperative that they be guaranteed the freedom to explore methods and materials which go beyond the practices of their supervising teachers.

In addition to actively involving students and to pushing them beyond the level of the personnel who help to prepare them, there is a third important reason why freedom is an essential characteristic of the teacher education program. Once we admit that traditional school curricula must be changed and made more responsive to the backgrounds and needs of youngsters, then we must also recognize that future teachers must be prepared in a manner which encourages them to initiate and participate in change. One effective means of preparing students for service in dynamic, changing schools is to offer them the freedom to change at least their own behavior as students. Nothing will undermine student initiative and their potential value in schools as will direct experiences which lead them to perceive that following directions, emulating others and not "rocking the boat" are the behaviors of successful teachers. To prepare teachers to practice methods which are presently unspecified, with materials not yet developed, in schools which are still to be conceived, they must as students be offered wide latitude and encouraged to be unrestricted inquirers into the processes of teaching and learning.

JUDGMENT OR HELP

Student teachers, interns and first-year teachers inevitably reveal many areas in which they need to develop further. Most of these needs should not be viewed as deficiencies but as the natural shortcomings which can be anticipated in learning the very complex process of teaching. It is crucial that students and beginning teachers learn more than a feeling of inadequacy in handling the problems which naturally arise in working with youngsters.

If the teaching, supervision, or guidance offered to students during their direct experiences are perceived as judgmental rather than helpful, then little thinking and learning will take place. Present practices which require the same college personnel who serve as helping persons to also grade, recommend and certify, force students to become focused on pleasing those whose judgments can control their careers. It is not difficult to imagine why students do not readily reveal their needs and make themselves even more vulnerable in a situation which is so thoroughly judgmental. Newer programs of teacher education have experimented with relationships which place students in contact with individuals who offer only help; judgmental decisions are made by others.

The same problem of separating help from judgment-making is magnified during the first year of teaching. The principal or supervisors who are expected to really help the neophyte cannot be the same individuals who rate his competency and compare him to others. If the same individual performs both functions it is unrealistic to expect the beginning teacher to be honest about his problems and needs. But even more important, the beginning teacher with problems may view himself as inadequate when he should be encouraged to regard his situation as normal.

The first year is an especially vital period in which to really help the teacher. The beginner is naturally faced with the immense task of reconciling the gap between theory and practice and with suddenly assuming a great deal of professional responsibility.

The notion that it is only "fair" for all teachers to have the same responsibilities is indeed unfortunate. The beginning teacher needs fewer pupils, fewer pupils with extreme problems, more planning time, fewer extra duties and more opportunities to observe and to be observed, than the established, veteran teacher. Most of all, he needs real, on-the-spot help with his problems from someone in a non-judgmental role.

A major goal of teacher education is to free the student to think creatively about real problems. If the individuals with whom he works do more judging than helping, thinking will be curtailed. It would be unfortunate for teacher education if most judgments about students were made in the period when they could potentially change most—during their professional laboratory experiences and their first year of teaching.

THE PROFESSIONAL SEQUENCE

A group of expert teacher educators attempting to specify the ideal preparation for teaching included the following elements:

1. A liberal education geared to the general problems of living in the present century.
2. Specialized preparation which includes the content, method and structure of a discipline, particularly as it relates to teaching.
3. Professional education which adds:
    a. Insight relative to learners and the learning process,
    b. Understanding of the contributions and potential of various types of educational programs,
    c. A commitment to continuous learning and a sharing of learning with others,
    d. Skill in teaching and the use of instructional materials,
    e. An understanding of the process of changing curricula,
    f. Skill in the use of research,
    g. Growth in assuming the responsibilities of a member of the teaching profession, and
    h. Growing competence in interpreting education to the community.[3]

More recently, other teacher educators studied research related to the actual behavior of successful teachers, consulted with theoreticians on the nature of conceptual learning, and suggested that preparation for teaching include study in five areas: analytical study of teaching, structures and uses of knowledge, concepts of human development and learning, designs for teaching-learning, and demonstration and evaluation of teaching competencies.[4]

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[3] Adapted from Margaret Lindsey (Editor). New Horizons for the Teaching Profession. A Report of the Task Force on New Horizons in Teacher Education and Professional Standards. Washington, D. C.: National Commission on Teacher Education and Professional Standards, National Educational Association, 1961.

The most fruitful approach for determining the content of teacher preparation is to begin with a thorough description of what successful beginning teachers do. These behaviors could then be analyzed in order to determine the nature of the knowledge and attitudes from which they are derived. Once the knowledge and attitudes which serve as the sources of the teachers' behaviors are known they can be taught to students. This approach of beginning with an analysis of teaching behavior is diametrically opposed to the present practice in most teacher preparing institutions where it is assumed that if a student studies educational foundations, learning and teaching methods, he will naturally gain the knowledge and attitudes needed to perform successful teaching behaviors.

The following program description does not propose a set of college courses. Instead, it suggests six areas of study which are derived from observing the performance of successful teachers. These are the nature of the subject matter; the nature of children and youth; the nature of the educational setting; the nature of the process of learning; the nature of teaching; and the nature of self. Following is a brief description of teacher behavior in each of these areas. These behaviors are offered as examples and not as an exhaustive review of the behaviors which account for success among beginning teachers.

THE NATURE OF THE SUBJECT MATTER

All teachers must have a thorough knowledge of their subject matter, the way it is organized, and the processes by which new knowledge is added to the field. But these are minimum requirements. The critical behaviors in teaching relate to the ways in which pupils are helped to see purpose and meaning in what their teachers would have them learn. One factor which seems to account for much successful pupil learning is the teacher's enthusiasm.

It is evident that the teacher's enthusiasm for some discipline, topic, or area of study is often contagious. The critical element in determining how much pupils learn does not seem to be inherent in the subjects themselves, in the manner in which they are organized, or in the basic ideas which characterize these disciplines. The most important determinant of how much pupils learn seems to be the degree to which the teacher demonstrates that he thinks the material is important and that he values it and regards it as useful.

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[4] Herbert F. LaGrone (Director). A Proposal for the Revision of the Preservice Professional Component of a Program of Teacher Education. A Progress Report of the Teacher Education and Media Project. Washington, D. C.: American Association of Colleges for Teacher Education, 1964.

The same phenomenon of teacher enthusiasm seems to be true for teaching processes of learning related to particular subject matter. In cases where teachers value the problem-solving approach, inquiry training, or any other particular method of learning, the pupils soon adopt the processes favored by the teacher.

The problem of making teachers competent in their subject matter, therefore, is at least three layers deep. First, they must be helped to learn a great deal about the content and methodology of the areas in which they propose to offer instruction. Second, they must develop skills related to helping others see value and meaning in this material. Third, if a key teacher behavior related to the transmission of subject matter is the teacher's behavioral demonstration of enthusiasm, then teacher education programs must be designed to include this behavior as an objective of the preparation.

THE NATURE OF CHILDREN AND YOUTH

All teachers should have a thorough knowledge of the stages of development which characterize youngsters' growth, with particular emphasis on the age groups with whom they work. In addition to this general knowledge, however, teachers must know the specific maturity levels of the pupils in their classes. Such knowledge is necessary for organizing the classroom. The work of successful beginners is characterized by a work situation which is well-organized because it is based on the interest and needs of pupils at particular stages of development.

The classrooms of successful beginners are rooms in which individuals are able to predict the behavior of others. Pupils know what they are about and what their peers and the teacher are doing. But more important, pupils seem to know the written and the unwritten rules guiding these behaviors. The ease which seems to characterize the successful situations may also be due in part to the fact that teacher and pupils share common understandings regarding materials and their use. The result of these mutual understandings is that the participants in these classroom interactions have the power to predict their own actions and, to a great degree, the responses of others.

The difference between a rigidly autocratic classroom and a well-organized one that is not harmful to youngsters is that the latter is based on the teacher's knowledge of growth and development. There must be rules and the rules must be followed. They offer security and enable groups to occupy the same space, use the same materials, and work cooperatively. But rules must be in harmony with the child's nature and should enhance rather than work against his development. A well-organized classroom is a behavioral demonstration of the teacher's knowledge of pupils' nature and growth. Programs of teacher preparation must go beyond offering course work in child growth and development and provide opportunities for students to engage in the specific teaching behaviors that derive from such knowledge.

THE NATURE OF THE EDUCATIONAL SETTING

In order to conceptualize an appropriate role for the school and its teachers, students should study the nature of the neighborhood. As they become familiar with the life styles of youth they may increase their ability to empathize and to see positive attributes in youngsters who are able to grow in spite of numerous adverse environmental influences. Teachers who are open to the positive characteristics of youngsters demonstrate that they believe in and respect their abilities.

The verbal behavior, body gestures, facial expressions and written communications of successful beginning teachers all give clear indication that they believe in their pupils. Their behavior not only indicates that they think pupils can learn the work at hand, but that they have unlimited potentialities. Rather than sentimental, maudlin or condescending behaviors, the work of the successful beginner is characterized by a clear assumption that nothing is too difficult—provided he knows appropriate teaching procedures.

Beginners who do not manifest this belief in their pupils place the blame for learning difficulties entirely on the youngsters, while teachers who believe in their students are willing to assume some professional responsibility for what their pupils learn. Statements such as, "This is good enough work for these kids," or "This is the best you can expect from them," imply that the teacher thinks he knows the maximum which can be expected of his pupils and are examples of a deprecating teacher attitude. Successful beginners give pupils work at which they can succeed but expect them to persistently advance to new levels.

Future teachers should study the school setting in order to gain knowledge and develop attitudes which will help them to demonstrate behaviors of respect for and belief in the potentialities of the youngsters with whom they will work. These teacher behaviors should be included among the objectives of teacher education programs.

THE NATURE OF THE PROCESS OF LEARNING

By their behavior teachers should demonstrate that they can implement principles of learning in their work with pupils. One kind of behavior which shows such teacher understanding relates to the standards of work which are established in the classroom.

Successful beginners frequently set more than a single expectation for a group; there are varied expectancies for different youngsters. Behaviors which lock a class together (e.g. giving the total group the same assignment to be completed in the same period of time; using the same reading material with a total group; explaining, giving information and discussing with the whole group) are less frequent among successful beginners than behaviors which establish multiple standards (e.g. giving assignments on a variety of levels to be completed in different lengths of time; working with individuals and sub-groups within a classroom; allowing pupils to make choices and participate in decisions related to their assignments).

The essence of these behaviors is that the teachers' acts encourage pupils to believe that if they try they can succeed. Some beginning teachers experience difficulty because they expect too little and rationalize their actions by underestimating what can reasonably be expected of "these kinds of kids." Others have difficulty because they set rigid goals which are beyond even their most able pupils on the pretext that the curriculum must be "covered." Successful beginners set standards which reflect pupils' needs without pandering to them. Because they accomplish tasks which they themselves value and because they are capable of evaluating their own success, pupils in these classrooms seek little external reinforcement.

The program of teacher education cannot include a course in educational psychology and assume that such study will influence students' future behavior as teachers. The emphasis must be on opportunities for students to behave in ways which indicate they understand the nature of learning at the same time they support their actions with theories and principles of learning.

THE NATURE OF TEACHING

A good behavioral indication of whether a beginner understands the nature of teaching is his willingness to listen to pupils. Professional listening requires that the teacher be attentive, remember and utilize pupils' talk. Being attentive means giving the youngster real attention — not allowing him to address a teacher distracted by other tasks or engaged in other responsibilities. Remembering what pupils have said enables the teacher to understand the process of pupil growth and to plan future activities. The teacher's ability to use pupils' ideas is reflected in his questions and in the manner in which he attempts to extend thinking by combining pupils' statements and encouraging clarification.

All of these critical behaviors are derived from the intern's initial willingness to listen. Less successful beginners seem to regard their pupils' talk as some form of interference while more successful teachers attempt to elicit pupil talk as one of their major purposes. If teacher education programs are to be derived from successful teaching behaviors, then there must be plans for offering students practice in listening and using pupils' ideas.

THE NATURE OF SELF

The behavior which indicates that a teacher is aware of himself is his willingness to examine his own motivations and an ability to under stand the nature of the influence he is exerting on his pupils. This is the most difficult area in which to offer instruction, yet, perhaps the most important.

Successful beginners assume major responsibility for the quality of their interaction with youngsters and do not regard others, the pupils, or environmental conditions responsible for their actions. They are also aware of their feelings and attitudes and recognize when they act in anger or in response to some prejudicial attitude. More important is the ability to consciously control their behavior. They decide when they will be eliciting or directing, stimulating or calming.

The program of preparation should include many opportunities for students to evaluate and describe their own actions. Practice in understanding and controlling their own behavior is truly useful.

The preceding discussion of the relationship between the behaviors required of beginning teachers and the six areas of study from which the behaviors are derived is summarized in Figure 1. These six areas should not be regarded as six courses. They are the areas from which the courses in the professional sequence should be developed. Each course in the professional sequence should include some material from all six of these areas.

Figure 1
SOURCES OF THE PROFESSIONAL SEQUENCE

Areas of Study	Successful Teaching Behaviors	Examples of Preparation
1. The Nature of Subject Matter	Enthusiastic about subject matter.	Arouses youngsters' interests in studies which they do not enjoy or in areas which are new to them.
2. The Nature of Children and Youth	Organizes classroom in terms of youngsters' developmental levels.	Prepares materials, gives directions and simultaneously guides the work of various groups of youngsters.
3. The Nature of the Educational Setting	Demonstrates basic respect for pupils.	Gathers data about the school neighborhood and applies this knowledge to unlock or increase youngsters' learning.
4. The Nature of the Process of Learning	Sets standards which lead to success.	Sets individual standards at which youngsters can succeed and which they regard as worthwhile.
5. The Nature of Teaching	Uses pupils' ideas to clarify thinking and values.	Listens to pupils. Remembers what they say. Uses their ideas to clarify their thinking.
6. The Nature of Self	Evaluates his own ideas, feelings and behaviors.	Introspects regarding the effects of his attitudes and behaviors on his work with youngsters.

Figure 2
THE PROFESSIONAL SEQUENCE

Courses	Related Field Experiences	Approximate Time
1. **Educational Foundations.** Basic concepts from the fields of psychology, sociology, anthropology, humanities and social science which have relevance for the work of the teacher.	Tutoring Individual guidance School aide	10 weeks 8 hours per week
2. **Urban Studies.** An application of social science principles to the school neighborhood in which the student is working.	Work in a Community agency	20 weeks 12 hours per week
3. **The Observation and Analysis of Teaching.** By focusing on real situations students are helped to learn about their perceptions, interpretations, and value judgments regarding teaching-learning situations.	Direct observation in schools Indirect observations via films, tapes and TV	15 weeks 8 hours per week
4. **Educational Research.** A study of various descriptive systems of teaching. An emphasis on research skills that will enable the student to systematically study his own teaching.	Student teaching	15 weeks full days
5. **Methods and Media of Teaching.** An application of methods to the students' first responsible teaching. Practice in the utilization of all available means of educational technology.	Internship	35 weeks full days

Figure 2 indicates the five courses proposed as the professional sequence, the related field work and the approximate time required for these experiences. In total, this program would account for approximately one-fourth of the student's undergraduate program exclusive of the period of internship which is viewed as a fifth year to bridge the gap between a student's preparation and his first year of practice.

It is unfortunate, but likely, that, in their oversimplification, the preceding ideas look more realizable than they really are. Essentially, they are primitive, embryonic attempts to get at four basic processes for handling professional knowledge as it relates to the preparation of teachers. The study of teaching deals with the integration, personalization, application, and generalization of these various orders of ideas. It is more than an analysis of the six "Jim Dandy" sources of knowledge, itemized in Figure 1 and organized into a professional sequence in Figure 2.

The six "Nature of's" must not be viewed as discrete subjects which lend themselves to specialized graduate courses – or any disparate arrangements of study. Instead of attempting to separate knowledge about learning and teaching from one another and from knowledge about growth and subject matter, studies which analyze *and* synthesize are the highest form of professional preparation.

It is commonly assumed that people will use ideas they don't care about and that emotional valences attached to ideas are an unnecessary interference in university courses and professional practice. As a result, personalization is the most commonly omitted process in the study of teaching. Nevertheless, the recognition that a teacher must make ideas his own before they will impel him to act is fundamental. This truth requires the study of teaching to be an emotionally intense process in which the teacher becomes committed to act, and most of all, to introspect about the nature of his encounters. When means for personalizing knowledge are identified and developed they will become the highest order of "know-how" for teacher educators.

Coordination of ideas and commitment to them are demonstrated by their use. Without intensive laboratory experiences the other dimensions of the study of teaching are hollow. The ideas of true laboratory experiences in which the lines of preservice and inservice preparation are blurred, and in which there is a genuine opportunity to practice and experiment, are suffiicently well-known to make their repetition here unnecessary.

The culmination of making ideas clinically relevant is the production of new ideas. The ability to extend and produce theory, research, and insightful experiential evidence should be a part of every teacher's preparation. A basic criterion of the professional practitioner is that, as a result of his ability to integrate, personalize, and use ideas, he will be able to contribute to the general understanding.

The achievement of these processes is no easy matter; the difficulty, however, does not mitigate the need to consider and criticize their relevance as the basic components of the study of teaching.

PART III

Action Programs

The first three case studies describe three different approaches used to help prospective teachers and inservice teachers study teaching systematically. The Syracuse Inter-University Program discussed by Thomas Clayton emphasizes the use of a combination of frameworks for analysis whereas the Temple University program described by Edmund Amidon and the Illinois State University approach described by Mort Waimon concentrate on one specific framework. The conceptual tools developed by Ned Flanders for interaction analysis are central in the Syracuse and Temple approaches. However, Waimon creates his own method which he believes is less complex and therefore more useful, since it can be better understood by prospective teachers who are not sophisticated in the use of research tools.

An interesting feature of the Temple case study is a description of a training program developed to teach supervising teachers and college supervisors how to use conceptual tools for analysis, as well as to help student teachers analyze their teaching behavior.

The case study of the Teachers College, Columbia University program by Margaret Lindsey and Dorothy McGeoch points out the necessity of changing other aspects of the teacher education program when the systematic study of teaching is given a new emphasis. They discuss the changes necessary to make the supervisory conference more effective.

Each of the case studies leaves many questions still unresolved and presents results that are not as yet conclusive. However, the data obtained from these operational programs provide enough evidence to suggest that new approaches to the study of teaching hold much promise for shortening the distance between theory and practice in teacher education.

Conceptual Models for The Study of Teaching in the Syracuse Inter-University Program

Thomas E. Clayton
Syracuse University

The systematic study of teaching is fascinating in itself. It can stand alone as a subject of inquiry. But in a program of teacher education, it is but one phase of a total program, and is meaningful only if it leads to more appropriate behavior on the part of the teacher.

It is in this context that we at Syracuse University developed a small pilot program to test out various hunches about teacher education. This paper will concentrate on the systematic study of teaching, but it must be remembered that this takes place in a context and a sequence of experiences aimed at integration in preparing teachers — integration in both approach and expected outcomes. A detailed statement of rationale and program description is in press at Cornell University in a report on the programs at the four upstate universities.[1] The present paper draws heavily upon that account, but gives special attention to the systematic study of teaching.

THE CONTEXT OF THE PROGRAM

During our planning year of 1961-62, our own process was not particularly systematic. We were committed to an experience-based approach, to developing a close relationship with selected public schools (referred to as teaching centers), to an increased and improved use of media in teacher education, and above all, to developing an "imaginative" program. Out of these commitments and the interaction with colleagues on the four campuses and in the public schools, the program emerged. Specific program details were developed cooperatively with the public school personnel (referred to as associates in teacher education) involved in the program. We settled on a three-year sequence encompassing the junior year, senior year and one graduate year. For a number of reasons we limited the project to preparing English and social studies teachers for the secondary school. We had no direct influence on the course work in English and social studies, but determined that the required professional sequence would be a continuous three-year program under the direction of the Project I staff, operating as a team. The program was organized around a series of experiences and seminar blocks, rather than in discrete courses. The first pilot group was selected during the spring, and started the program as a group of counselors at a camp in the summer of 1962.

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[1] Project I, the Inter-University Program in Teacher Education, has been supported by a five-year grant from the Ford Foundation to the State University at Buffalo, Cornell University, the University of Rochester, and Syracuse University.

The selection of the camp counseling experience was an attempt to involve students in an informal teaching situation with many of the problems and opportunities cognate with other teaching situations. A parallel focus was the involvement with adolescents in a relatively intensive relationship, with the hope of developing increased insight into both the adolescent culture and the needs of the individual. A staff member, charged with the responsibility of helping students analyze and interpret their experiences in the light of their projected development as teachers, accompanied the group and lived at the camp.

INITIAL EXPERIENCES

When the group began its first series of seminars in the Fall, it was apparent that the study of teaching had already begun! It was at a low cognitive level, not particularly systematic, but the affect was high. A number of areas of concern that would later become reference points for a more formal study of teaching were quickly identified, but our immediate concern was to help students explore their own current concepts about teaching, education, and school systems. Although the term was not yet used, the focus of discussion was the role behavior of teachers, and, more especially, the student's own role behavior as a prospective teacher.

The students were given an opportunity to try out their developing concepts and associated behaviors in a teaching-participation experience in a teaching center for the major part of the semester. Their perceptions of their successes, failures, and problems continued to serve as the bases for discussion throughout the semester, with the staff attempting to fill a questioning and clarifying role. The emphasis in this phase was the exploration of self as a prospective teacher. Not until later was a more systematic objectification attempted. Reaction papers, logs of teaching experiences, and a self-evaluation paper maintained this emphasis.

Concurrent seminar meetings, in which the English teachers and social studies teachers met separately, explored more systematically the methods, materials and curriculum in their respective disciplines. The material here was relatively conventional, but, hopefully, illuminated by the students' immediate teaching needs and the immediate application of certain aspects to their teaching.

It was our belief that early involvement in responsible teaching was a necessary component in the study of teaching. We felt that the students needed to face and recognize some of the problems of teaching in an action situation before the study would assume true relevance. For this reason, the personnel at the teaching centers were encouraged to place the students in a variety of teaching activities with a minimum of prior orientation. Observation of regular teachers and of other students was encouraged only after the student teachers had tried some teaching and had become ready to see how others handled now recognizable teaching problems. Confronting the demands of teaching and engaging in teaching acts preceded analytical study.

After the students returned to campus with their feet wet, the pattern of two three-hour seminars per week was established. Conventional course numbers for six credits were used, but internally the seminar was "an intensive analysis of the teaching-learning process in the American School." The specific emphases implied by this title continued throughout the Spring semester. Since an analysis of this phase will form the main burden of this paper, detailed description will be postponed until after the remainder of the context is sketched.

INTERNSHIP AND SEMINAR

Following the intensive analysis sequence, students engaged in a full-semester internship during the Fall semester of either their senior or graduate year. They were assigned full-time to one of the teaching centers, but taught approximately one-third to one-half of a full load, generally starting work with their own classes from the opening day of school. The remainder of their time was spent in planning for teaching, engaging in other non-classroom activities, observing regular teachers and other students, and, hopefully, studying and reflecting upon their own teaching behavior. It was in this experience that the long period of studying teaching was expected to pay off in the self-monitoring and continued improvement of teaching.

It is our experience to date that even with the limited teaching schedule, the first half of the internship tends to be a matter of coping with *every day teaching* tasks. Not until the second half are the routine adjustments well enough established to permit the application of self-study to major attempts at improvement.

A weekly seminar on campus accompanied the internship, and enrolled not only the current interns but also those seniors who would intern the following year, and a few of the graduates who had completed the internship. The focus of attention was on the current internship activities. The assignment sheet indicated the emphasis on studying one's own teaching that was characteristic of the seminar:

> Your major assignment this semester is, of course, to do a good job of teaching. In conjunction with that job we expect you to analyze and reflect on your teaching toward its continuing improvement. The seminar is designed to help you in this latter phase. It is important that you complete the assigned activities on schedule so that they may be used in conducting the seminar. There are five major assignments:
>
> 1. Record enough of your class sessions on audio-tape so that you can select, for at least two class periods, recordings that are of good techni-

cal quality. Turn in the tapes and a written description of the classes not later than October 21.

2. Make arrangements to observe other students and do at least two interaction analyses using the Flanders matrix technique. Write up your analyses of both matrices. If some of the analyses are of the same class session as the audio-tapes, it will be very helpful. Due not later than Novemer 18.
3. During the semester, arrangements will be made to record some of your teaching on television tape. Specific schedules will be developed later.
4. In some phase of your teaching, make specific plans for major use of a variety of audio-visual media. Remember that media do not stand alone, but are part of a total instructional system. In writing, describe, analyze and evaluate the media phase after its comjletion.
   Instructional necessities must dictate when this can be done, but we would like to have these analyses by December 16, if possible.
5. Keep such records of your planning and teaching of at least one class throughout the semester so that you have the data to describe and evaluate the instructional process in that class. Using our **Model of the Instructional Process** or a modification of it, write a coherent description and analysis of that class. Due at the last meeting of the seminar.

These assignments were a means of following up work done in the earlier seminars. They attempted to encourage specific application of the study of teaching to the interns' current intsructional activities.

Final Phases

There was only one remaining phase of the required professional sequence. Students were asked to engage in an independent study project based upon their own analysis of their individual strengths and weaknesses as teachers. A written prospectus was submitted for staff approval during or following the internship.

The remainder of the student's time was devoted to subject matter specialization and regular degree requirements. Typically, those students who intern as seniors spend their graduate year in a Master's program in English or a specialized area of the social studies, and have no further professional courses. Those who delay their internship till the graduate year, typically take a Master's degree in education, focusing on the teaching of English or the teaching of social studies, and spend their senior year in a heavy concentration in their subject specialty. This latter group meets the regular requirements of the degree program.

CONCEPTUAL MODELS FOR THE STUDY OF TEACHING

It should be clear from the extended description of the context of the program that we are primarily interested in developing effective teaching behavior and a commitment to teaching on the part of our students. However, we do not believe that the affective learnings are achieved by exhortation, nor that overt behavior is best developed by mere imitation, "training," or recipe giving. Rather, we believe that both affect and activity are learned through responsible task activity illuminated by cognitive grappling with recognized difficulties. Learning in the cognitive domain is instrumental to improved overt behavior and to the affect and conation which keep it going. We work on the premise that only as understandings are internalized as a coherent framework and as an available guide to decisions about behavior are they truly relevant and useful. More frequently than not, teachers behave reactively. These reactions are partly governed by the cognitive framework which supports the teachers' value systems and network of habits. The trick in improving oneself is to have in readiness a comprehensive conceptual scheme to apply in reflecting upon and analyzing past and ongoing behavior in ways that will permit better decisions and actions in the future.

The Search For Models

Our problem, then, in selecting intellectual content for the program, was to find information, theories, concepts, and approaches that would be most likely to build such a conceptual framework to illuminate and guide teaching behavior. Furthermore, if students were to internalize these concepts as useful armaments, the concepts would have to be perceived as relevant to their own concerns and as applicable to their own teaching. The level of abstraction should be such that application to immediate recognized situations takes place, but that generalization to broader situations is also possible.

We found or developed a number of ways of conceptualizing teaching and aspects of teaching that seemed to have the appropriate level of abstraction and potential relevance. Much of the conventional information traditionally dealt with in the foundations of education and principles of teaching was passed over in favor of broader conceptual models which could be fleshed out by a number of possible samplings of information, data, examples, and recalled experiences. One student's comment on a particular presentation that "there was nothing new, but suddenly it fit together and made sense" gives the flavor of what we were trying to do.

It must be emphasized that the particular theories and models that we used are not presented as *the ones*, or even as the best ones. Another staff in another situation might well find a completely different set which would work as well or better for them. The important thing is that the set used must be intellectually stimulating, relevant, and have the potential for comprehensiveness and coherence. We have also felt it important to pursue an idea in sufficient depth to perceive its relationship to other ideas, rather than to get trapped into "covering ground."

It was here that recent research on teaching became an extremely valuable resource. A search of the literature and attendance at conferences dealing with such research opened up a number of techniques and conceptualizations that promised to be illuminating and useful.

We came to a position very much like the one later described by

LaGrone in the TEAM Project report.[2] The organization of content through the use of conceptual models made sense to us, and it seemed to be stimulating to students. The term "model" is used rather loosely here to include purely verbal descriptions of a major process as well as graphic or "ikonic" representations.

SPECIFIC MODELS USED

Some of the models were developed inductively with the students, others were presented as ways of looking at teaching. Still others were presented as "ideas that interested me." Some were presented very sketchily, while others were dealt with at length. The models are numbered discretely here for convenience. This does not necessarily imply a sequence or that each was presented discretely. In some cases a model listed here was incorporated in a larger framework.

1. The Roles of a Teacher[3]
   The six roles identified in the California statement were presented and used for a consideration of role priorities and role conflicts.
2. A General Theory of Learning[4]
   A broad eclectic point of view about learning was developed to serve as a reference point for continued analysis of the instructional process which "is presumed to lead to learning."
3. A Model of the Instructional Process[5]
   A set of categories for looking at a long-range instructional sequence was developed as a framework for putting other theories, models, and procedures into meaningful relationships. Considerable attention was given to the Taxonomy of Educational Objectives[6] within this framework.
4. Theories of Motivation[7]
   It seemed important to us to emphasize the idea that learners and teachers have built-in motives for doing things that lead to learning. Motivation may be seen as the drive process rather than as the incentive teachers use to get students into activity. The teacher's selection of incentives and "gimmicks" becomes a way of tapping or activating motives productively.

   For this purpose, we found Maslow's formulations of a hierarchy of needs as motivation to be particularly intriguing and illuminating. It is our impression that prospective teachers find the notions helpful in analyzing their own behavior as well as that of students.

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[2] Herbert F. LaGrone (Editor). A Proposal for the Revision of the Professional Component of a Program of Teacher Education. A Progress Report of the Teacher Education and Media Project. Washington, D. C.: The American Association of Colleges for Teacher Education, 1964. We tend to differ with LaGrone on several points. In our estimation, his proposal uses too many models. A selection of a smaller number pursued in depth seems more appropriate to us. Secondly, it seems to us that LaGrone neglects the affective dimension of teacher education and gives too little indication of how the cognitive dimension gets translated into action. We also question (as, we believe, does LaGrone) the implication of separate courses for a process that seems to us continuous and developmental.

[3] California Teachers Association. Teacher Competence. Its Nature and Scope. Burlingame, California: The Association, 1955.

[4] Thomas E. Clayton. Teaching and Learning: A Psychological Perspective. Englewood Cliffs: Prentice Hall, 1965, pp. 35-45.

[5] Ibid., pp. 13-20.

[6] Benjamin S. Bloom (Editor). Taxonomy of Educational Objectives. Handbook I — Cognitive Domain and Handbook II — Affective Domain. New York: David McKay Company, 1964.

[7] Clayton, op cit. pp. 69-77, 143-148. See also Abraham H. Maslow. Motivation and Personality. New York: Harper and Row, 1954.

5. A Concept of Kinds of Teacher Authority[8]

The notion was developed that a teacher depends upon certain sources of authority. The resulting mosaic of authority is then used to influence student behavior in the learning process. The idea of the importance of "institutional authority" opens up the need for studying the school as an institution. The idea of teaching skill as a source of authority opens up a more detailed study of teaching behavior.

6. Flanders Interaction Analysis[9]

Among the many developing schemes for characterizing and studying teacher behavior, Flanders' system for analyzing teacher influence and classroom interaction was selected for detailed study. Its relative simplicity (with only ten categories), along with the many inferences about teaching that it generates, made this approach particularly valuable for our purposes.

Students were specifically trained to record and use the categories and matrix analysis with audio-tapes, video-tapes, films, and live observations.

7. Perception and Communication Theory Models[10]

A number of ideas in earlier units had generated the notion of the distortion of, and individual nature of, perception. This became explicit in an exploratory purview of communications theory, emphasizing graphic models.

By this time, students had become intrigued by the idea of models as organizers of thinking. They were encouraged during this unit to develop and present their own models of the communications process.

8. Concepts of Teaching and Learning Concepts and Skills of Thinking[11]

Recent notions of learning through "discovery," the value of openness to change, and the individual nature of concept development were explored with reference to Bruner, Rokeach, Murphy, and others.[12] Illustrations from current curriculum projects are increasingly being used.

9. A Concept of a Professional Gestalt

An attempt was made to pull together the various units, models, and activities to develop a clear and comprehensive conception of teaching as a "whole."

Special emphasis was given to the teacher's clarifying his basic beliefs and values and perceiving their relationships to both his instructional ends and the means he utilizes to realize them. There was also explicit attention given to the need for integrating the knowledge acquired through general and subject field studies with that acquired from professional study and field experience.[13]

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[8] Clayton, op cit., pp 21-24.

[9] Ned A. Flanders and others. **Helping Teachers Change Their Behavior.** U. S. Department of Health, Education and Welfare, Office of Education, Project Nos. 1721012 and 7-32-0560-171.0, Ann Arbor: U. of Michigan, 1963 and **Teacher Influence, Pupil Attitudes and Achievement: Studies in Interaction Analysis.** Final Report, Cooperative Research Project No. 397, Minneapolis: U. of Minnesota, 1960.

[10] The development of this area and the preceding area (6) were largely the responsibility of Walter J. Mars, Media Associate and, for one semester, Acting Director of the Project.

[11] The development of this area and the following one were largely the contribution of L. Norman Adams, Assistant Director of the Project.

[12] Jerome S. Bruner. **The Process of Education** and **On Knowing: Essays for the Left Hand.** Cambridge: Harvard University Press, 1960 and 1962; John Dewey. **How We Think.** Boston: D. C. Heath, 1910 and 1933 and **Experience and Education.** New York: Macmillan, 1938; H. Gordon Hullfish and Phillip G. Smith. **Reflective Thinking: The Method of Education.** New York: Dodd, Mead, 1961; Earl S. Johnson. **Theory and Practice of the Social Studies.** New York: Macmillan, 1956; Gardner Murphy. **Freeing Intelligence Through Teaching.** New York: Harper and Bros., 1961; Milton Rokeach. **The Open and Closed Mind.** New York: Basic Books, 1960.

The idea of internalization of ideas, knowledge and beliefs as a basis for self-monitoring of teaching behavior was also developed as a central theme of the "gestalt."

10. The Class and School as a Social System[14]
    Since to look at the processes of teaching and learning as we have done tends to view the individuality of teacher and learner as having prime importance, the perspective of the nomothetic dimensions of the school was set in contrast in the Getzels-Thelen model. This was done in a brief presentation which seemed to summarize a great deal that had been dealt with earlier.

THE USE OF MEDIA

An early commitment in the project remains a continuing conviction: the expanded and integral use of the media of instructional communication is fundamental to a sound system of instruction in teacher education. The instructional process is severely crippled without adequate utilization of media and the back-up services which support it.

We are still attempting to learn how to get maximum value out of the use of television tape observation. Over the past two years we have not yet found the best uses of a superb device for studying teaching. During a recent semester, the recording and viewing equipment was used in each of the three teaching centers for a week in the later part of October and early in November, and again four weeks later. A taping and playback schedule was set up so that each intern could view himself in action as frequently as time permitted. Two half-hour segments of the tapes (one from the early session, one from the later session) were retained as a record for each intern. These particular "record tapes" were viewed and discussed by the intern in company with one or more supervisors.

Selections from the accumulating library of tapes are used in both the intern seminars and the intensive analysis seminars. Liberal use is made of the overhead projector in the presentation and discussion other than the project are used as illustrations of particular points, either in brief excerpts or as extended observations.

Films are used extensively, but selectively, to open up areas of discussion, extend experience, and provide material for analysis. Among the most helpful films are some of the series of films illustrating secondary school teaching available from the Pennsylvania State University: *Passion for Life, They All Learn to Read, If These Were Your Children,*

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[13] Thomas E. Clayton, L. Norman Adams and others. "One Approach to Teacher Education." p. 35. (Mimeographed)

[14] Jacob W. Getzels and Herbert A. Thelen. "The Classroom Group as a Unique Social System," in The Dynamics of Instructional Groups. Gale E. Jansen (Editor), The National Society for the Study of Education, Fifty-ninth Yearbook, Part II. Chicago: University of Chicago Press, 1964. Chapter IV.

Demonstrations in Perception, Unconscious Motivation, and *The Eye of the Beholder.*

Production facilities for teaching materials are made available to interns to encourage their use of audio-visual media. All students go through a self-instruction laboratory in the use of basic audio-visual equipment. Students in each group also engage in some production on closed-circuit television, primarily for familiarization purposes to expose some of the instructional possibilities of the medium.

OTHER ACTIVITIES IN THE STUDY OF TEACHING

Much of the exposure to the non-instructional activities of the teacher and the institutional demands of the school takes place in the school-related experiences. These areas are dealt with minimally on campus in preparation for the school experiences and in discussing students' reactions to them.

The continued close relationship with three public schools has been an invaluable part of the program as an experience source and for the "practical" study of teaching. Students must learn to understand and cope with the practical realities while they are developing tools for the improvement of educational processes. It is hoped that the constant interplay of campus and teaching center contributes to this.

Student reaction and analysis are solicited throughout the total program, both as feedback for program improvement and as a "reconstruction of experience" for purposes of learning. Critical analysis of the instructional process in college classes (the process which the prospective teachers are undergoing) is encouraged along with the critical analysis of their own teaching. The teaching they are subjected to is as valid a source for the study of teaching as any other aspect of the phenomenon.

One program in teacher education built around studying teaching has been described. It is not a research project, but rather a program based partly upon ideas and techniques suggested by recent research in teaching. The research and theoretical formulations have given us some understanding and insights about teaching that have generated some implications for teacher education. The program thus represents a translation stage in the problem-research-development-evaluation sequence.

There has been no formal evaluation of the program, nor, as yet, any follow-up study of its graduates. It has not been proved that the process of interweaving experience, analysis, and theory throughout an integrated professional sequence of three years has any demonstrated advantages over other programs. However, this approach seems to make sense to us in the light of recent research and theory.

It is intended that this account be descriptive, not prescriptive. Engaging in the program has had value for us in stimulating thinking about ways to prepare teachers. It is hoped that a study of this description will have similar value for others.

The Use of Interaction Analysis at Temple University[*]

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The Project on Student Teaching which is now being carried out at Temple University is designed to test the hypothesis that student teachers who receive behavioral training in interaction analysis will demonstrate training in conventional learning theory.

The project is based on an important assumption about the nature of the student teaching experience; that is, that *the objective of student teaching is to provide a laboratory in which the student teacher has the opportunity to experiment with, practice, and learn new teaching behaviors.* Student teaching is usually the first opportunity the student has to put into practice what he has studied and is studying in the courses taken in his teacher education program. Even though the student teaching experience is designed to provide a laboratory for practice, the student may not be able to put into operation the contents of what he has "learned." The Temple Project on Student Teaching attempts to help students translate the content of their teacher education program into teaching behavior. In a sense, student teaching is a test which indicates whether or not the teacher education program as a whole has been effective; that is, whether or not the content of the program becomes operational.

THE QUALITY OF STUDENT TEACHING PROGRAMS

If student teaching is a test of the effectiveness of the teacher education program, it is important to look at the quality of student teaching programs. This is rather difficult because so little systematic or experimental research has been conducted in this field. However, we do know that (1) student teaching programs are often staffed by members of the college faculty who lack experience with and/or commitment to student teaching, (2) student teachers are often placed with teachers who have been haphazardly selected and who are untrained for the job of supervising teachers, (3) college supervisors are often assigned to work with so many student teachers that they can provide only limited help to individual student teachers or supervising teachers, (4) student teachers often adopt the habits and practices of the supervising teacher whether or not these practices are consistent with what they have "learned" in their course work.

Recently a number of teacher training institutions have introduced changes into their student teaching programs in an attempt to improve the effectiveness of these programs. Among these innovations are the use of student teaching centers; the introduction of special honors' programs in student teaching; the use of teams of methods' and foundations' people in supervision; the use of faculty members from departments other than education in supervising student teachers; the placement of two student teachers in one classroom; the use of new media such as television in the supervision of student teachers; the increase of the amount of school responsibility for the preparation of student teachers; and the use of observational systems for analyzing classroom interaction in the supervision and training of student teachers.

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[*] The research reported herein was performed pursuant to a contract with the United States Department of Health, Education and Welfare, Office of Education, under provisions of the Cooperative Research Program.

Some of the changes just listed involve modification of the structure of the student teaching experience rather than modification of content or process. The point of view of the Temple Project on Student Teaching is that the objective of student teaching – to provide a laboratory in which the student teacher has the opportunity to experiment with, practice, and learn new teaching behaviors – cannot be accomplished unless the content (the material taught to students) and the process (the way in which supervisors and college faculty work with students) is modified. Including teaching in the teacher education program does not ensure that student teachers will be provided a laboratory in which to experiment with, practice, and learn new teaching behaviors; neither will changes in the structure of student teaching ensure this. It may be that structural change can make content and process change more likely, but structural change without content and process change will not bring about improvement in teaching itself.

The Temple project assumes that certain conditions are important to an effective student teaching program: (1) a desire for change on the part of the student teacher, (2) a climate of support for the student teacher, and (3) a system which objectively describes what occurs in the classroom and which can be used by the student teacher for feedback. If these conditions are present, then student teaching can become the laboratory in which new teaching behaviors can be practiced, experimented with, and learned. The Temple project was planned so that these conditions would be met.

THE EXPERIMENTAL TRAINING PROGRAM

The Temple project includes three basic components: a lecture course, a workshop, and a student teaching seminar.

The Lecture

The lecture is used to present ideas which are then developed and put into practice in the seminar and workshop. The basic material presented in the lecture includes the interaction analysis system developed by Flanders,[1] the four categories for classifying thinking developed by

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[1] Edmund Amidon and Ned A. Flanders. The Role of the Teacher in the Classroom. Minneapolis: Paul S. Amidon and Associates, 1963.

Gallagher and Aschner,[2] Bellack's moves and teaching cycles,[3] Hughes' teaching functions,[4] and Taba's teaching strategies.[5] The major emphasis is placed on Flanders' interaction analysis.

During the first half of the semester students learn about Flanders' categories for analyzing teacher-pupil talk and learn how to construct and interpret matrices. When the students understand the Flanders approach, they study the Gallagher and Aschner categories for classifying teacher questions and pupil thinking. The categories of Flanders and Gallagher and Aschner provide student teachers with a framework for studying classroom interaction patterns, and students are encouraged in attempts to integrate the two category systems.

Next the students are introduced to Hughes' teaching functions, another means of analyzing teacher behavior, and to Bellack's description of teaching moves and teaching cycles. Finally, students learn Taba's teaching strategies, which are designed to raise the level of children's thinking.

The student teachers are encouraged to look at the various systems comprehensively, combining whatever parts of each system would be needed for the accomplishment of particular goals. The last part of the lecture course is concerned with research on teacher-pupil interaction, and the function of the category system as a feedback device.

THE WORKSHOP

The workshop is designed to develop skills in using the various observational procedures and in translating the concepts presented in the lecture into teacher behavior. The activities include tape listening, role playing, skill sessions, and discussion.

Classroom tapes are played and classified according to the various category systems. A discussion of the teaching behavior heard on the tape often follows the classification exercise, and students are asked to role play ways of teaching other than those heard on the tape.

Skill sessions might involve the acceptance of all pupil statements, the changing of all rejecting statements to statements which give corrective feedback, or the use of praise which is followed by public criteria. The student teachers also have experience in producing categories or various combinations of categories in role playing situations; for example the student playing the teacher might ask a divergent question, and then respond to a pupil comment with a statement which accepts the student idea and is at least *six seconds* long. This practice gives student teachers an opportunity to try out behaviors they might not ordinarily use; this, in turn, stretches the teaching repertoire of the student teacher.

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[2] James J. Gallagher and Mary Jane M. Aschner. "A Preliminary Report: Analysis of Classroom Interaction." Merrill-Palmer Quarterly of Behavior and Development, 9: 183-194, 1963.

[3] Arno A. Bellack, Joel R. Davitz, et al. The Language of the Classroom. U. S. Department of Health, Education and Welfare, Office of Education, Cooperative Research Project No. 1457. New York: Institute of Psychological Research, Teachers College, Columbia University, 1963.

[4] Marie M. Hughes. "Utah Study of the Assessment of Teaching." Theory and Research in Teaching. Arno A. Bellack (Editor). New York: Teachers College, Columbia University, Bureau of Publications, 1963. pp. 25-36.

[5] Hilda Taba et al. Thinking in Elementary School Children. U. S. Department of Health, Education and Welfare, Office of Education, Cooperative Research Project No. 1574. San Francisco: San Francisco State College, 1964.

THE SEMINAR

The seminar focuses on an analysis of the student teachers' own teaching. This is done by listening to tape recordings of their teaching, classifying these tapes (using the various category systems), discussing the tapes, and role playing alternative ways of teaching. Students also prepare lessons which can be role played in the seminar and later tried out in the real classrooms.

The supervising teachers who work with student teachers in the project also take a course which combines the elements of the lecture and workshop. One of the activities for supervising teachers involves practice in giving feedback to student teachers during conferences.

The lecture, workshop, and student teaching seminar are designed to help achieve the objective which has been stated in this paper, that is, *student teaching is a laboratory in which the student teacher has an opportunity to experiment with, practice, and learn new teaching behaviors.* By utilizing training tools and activities which overcome limitations of student teaching programs, such as those mentioned in this paper, the Temple project attempts to create the *conditions important for the improvement of teaching.*

Earlier in this paper it was stated that the Temple project assumes that certain conditions are important to an effective student teaching program: (1) a desire for change on the part of the student teacher, (2) a climate of support, and (3) an effective feedback system. The first condition is met because, save in rare cases, student teachers do want to perform well and improve their skills. The second condition is met because the student teacher is provided with a climate of support by his supervising teacher, his college instructors, and his peers who have been trained in the skills of giving feedback in a helpful way. The systems studied in the program provide the feedback for learning about one's own teaching, thus meeting the third condition. Thus, the Temple project attempts to maximize the possibility that student teachers will translate what they have learned into their teaching behavior.

INTERACTION ANALYSIS

Interaction analysis has been mentioned several times, yet not everyone is familiar with it. The Flanders system of interaction analysis is an observational procedure which can be used to classify the verbal behavior of teachers and pupils. Using this system, verbal behavior in the classroom is classified into ten category designations. There are seven categories for teacher behavior, four of which are classified as indirect influence. They are: (1) accepting pupil feeling,

(2) praising or encouraging, (3) accepting pupil ideas, and (4) asking questions. There are three categoires of direct teacher influence, which are: (5) giving information or opinion, (6) giving directions, and (7) criticizing. Two categories of pupil talk are used in the system: (8) pupil response to the teacher and (9) pupil initiated talk. Category 10 is used to indicate silience or confusion. These categories are summarized in Figure I.

After a lesson has been categorized by a trained observer, the data collected by the observer must be summarized so that it can be interpreted. This is done by entering the category numbers in the form of tallies into a 10-row by 10-column table called a matrix. The completed matrix gives the observer a picture not only of the percentage of interactions falling in each category but also of the general sequence of responses. Although an exact representation of the sequential time element of the entire lesson is not shown, recording the numbers in the matrix in an overlapping fashion preserves the sequential time element of adjacent numbers. Thus, the researcher might note that praise followed student response about 10 per cent of the total lesson time and yet be unable to extract from the matrix whether the praise occurred during the first or last fifteen minutes of the particular lesson. For specific information about the sequence the observer relies on his raw data which was initially recorded in a column. The following example is offered to help clarify the use of the matrix:

> Suppose that after the observer enters the classroom the following sequence of events takes place: The teacher starts by saying, "Boys and girls, sit down in your seats and take out your workbooks." (category 6) Bill, one of the children, responds to this by saying, "But Mrs. Adams, I thought you said we were going to have a story this morning." (category 9) The teacher then reacts to Bill by saying, "You know that you were so noisy today that I decided to punish you by making you work in your workbooks. I don't like it when you forget these things, Bill." (category 7) (The observer records two 7's in a row because of the length of the statement.) Then the teacher continues, "Now I think we can forget about the story and get to work in the workbooks. If we do a good job then we will have the story tomorrow." (The first part of the statement is a 6 and the last part a 5.) The observer has recorded the following column of numbers, pairing them as shown below:
>
> (6
> 9)
> (7
> 7)
> (6
> 5
>
> These numbers are then entered into a matrix in sequence pairs in such a way that each number is entered twice, once as the first and once as the second number in each pair. The rows of the matrix represent the first number in the pair and the columns, the second. For example, the first sequence pair, 6-9, would be tallied in the cell that is located at the intersection of row 6 and column 9. The next pair is entered in cell 9-7, the cell at the intersection of row 9 and column 7; and the third pair, 7-7, into the cell located at the intersection of row 7 and column 7; Figure II shows the actual location of these five tallies in the matrix.

Figure I

CATEGORIES FOR INTERACTION ANALYSIS

Minnesota, 1959

Teacher Talk	Indirect Influence	1. * ACCEPTS FEELING: accepts and clarifies the feeling tone of the students in a non-threatening manner. Feelings may be positive or negative. Predicting or recalling feelings are included.
		2. * PRAISES OR ENCOURAGES: praises or encourages student action or behavior. Jokes that release tension not at the expense of another individual, nodding head or saying "um hm?" or "go on" are included.
		3. * ACCEPTS OR USES IDEAS OF STUDENT: clarifying, building, or developing ideas suggested by a student. As teacher brings more of his own ideas into play, shift to category five.
		4. * ASK QUESTIONS: asking a question about content or procedure with the intent that a student answer.
	Direct Influence	5. * LECTURING: giving facts or opinions about content or procedure; expressing his own ideas, asking rhetorical questions.
		6. * GIVING DIRECTIONS: directions, commands, or orders to which a student is expected to comply.
		7. * CRITICIZING OR JUSTIFYING AUTHORITY: statements intended to change student behavior from non-acceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing; extreme self-reference.
Student Talk		8. * STUDENT-TALK-RESPONSE: talk by students is response to teacher. Teacher initiates the contact or solicits student statement.
		9. * STUDENT-TALK-INITIATION: talk by students which they initiate. If "called on" student is only to indicate who may talk next, observer must decide whether student wanted to talk. If he did, use this category.
		10. * SILENCE OR CONFUSION: pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer.

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* There is NO scale implied by these numbers. Each number is classificatory; it designates a particular kind of communication event. To write these numbers down during observation is to enumerate, not to judge, a position on a scale.

Figure II

Sample Matrix

	1	2	3	4	5	6	7	8	9	10	Total
1											
2											
3											
4											
5											
6					1				1		2
7						1	1				2
8							1				1
9											
10											
Total					1	1	2		1		

THE RESEARCH DESIGN

Any program, if it is to be replicated, must be part of a research design and have the appropriate controls built into it. The present study is designed as a two-and-a-half year study to test the relationships between the training of supervising teachers and certain course content, and the behavior and attitudes of student teachers.

The study tests the following major hypotheses:

(1) Student teachers taught interaction analysis are more indirect at the end of their student teaching experience than student teachers not so taught.

(2) Student teachers who are taught interaction analysis and are supervised by supervising teachers trained in interaction analysis are more indirect at the end of student teaching than student teachers not receiving such training and supervision.

There are two independent variables: student teaching course content and the training of the supervising teacher. The course content for student teachers consists of either traditional learning theory or interaction analysis. The supervising teacher is trained in the use of interaction analysis as an observational technique, or receives training in learning theory.

EXPERIMENTAL GROUPS

This design makes it possible to treat the influence of two independent variables — the training of supervising teachers and student teaching course content — upon the dependent variables: (1) ratings of student teachers' teaching effectiveness, (2) attitudes of student teachers, (3) pupil perception of student teacher change, and (4) student teachers' teaching patterns. The four groups are compared with one another to determine whether student teaching course content or the training of the supervising teacher or a combination of the two has the most significant influence on the dependent variables. The study will be carried on for five successive semesters in order to provide for replication of the experiment.

Group I — Sudent teachers in this group are taught interaction analysis in a two-hour-a-week lecture and a two-hour-a-week seminar with their college supervisor in which they can discuss problems they are having in their teaching. The supervising teacher, using interaction analysis, observes the student teacher formally once a week for thirty to forty minutes, and spends one hour a week discussing the observation with the student.

Group II — Student teachers in this group are taught interaction analysis in a two-hour-a-week lecture and a two-hour-a-week seminar with their college supervisor in which they can discuss problems they are having in their teaching. The supervising teacher observes the student teacher formally once a week for thirty or forty minutes, and spends one hour a week discussing the observation with the student.

Group III — Student teachers in this group are taught learning theory in a two-hour-a-week lecture and a two-hour-a-week workshop. In addition, they have a two-hour-a-week seminar with their college supervisor in which they can discuss problems they are having in their teaching. They are also observed formally for thirty to forty minutes once a week by their supervising teacher, who spends one hour a week discussing the observation with them. Although the supervising teacher may use interaction analysis in his observation, he is clearly instructed not to discuss this tool or any of its terminology with the student teacher under any circumstances.

Group IV — Student teachers are taught learning theory in a two-hour-a-week lecture and a two-hour-a-week workshop. In addition, they have a two-hour-a-week seminar with their college supervisor in which they can discuss problems they are having in their teaching. The supervising teacher observes the student teacher formally once a week for thirty to forty minutes, and spends one hour a week discussing this observation. (See Figure III.)

Figure III

THE FOUR EXPERIMENTAL GROUPS

		Supervising Teacher	
		Supervision is done by a cooperating teacher trained in Interaction Analysis	Supervision is done by a cooperating teacher trained in learning theory
Course Content	Interaction Analysis and Seminar	15 Students Group I	15 Students Group II
	Learning Theory and Seminar	15 Students Group III	15 Students Group IV

POPULATION AND SAMPLE

Approximately sixty student teachers will be involved in the experiment during each of five semesters, all of them participating during their second student teaching experience. The student teachers are assigned to experimental groups according to a randomized block design. Student teachers are assigned in equal numbers to the four conditions on the basis of socioeconomic area in which they student teach, grade level taught, and subject matter taught. One of the particular problems in the student teaching assignment at Temple is the large number of placements in the "culturally deprived" areas of Philadelphia. By using this type of design an attempt is made to control the influence on the results of this variable of "cultural deprivation."

The student teachers are all students in the Department of Secondary Education at Temple University. Nearly all of the students are residents of Philadelphia. Approximately 50 per cent of the student teachers are girls. The four groups are compared on the basis of personality, attitudes, and college grades, in order to determine the influence of the variables.

DATA AND INSTRUMENTATION

Student teachers are rated at both the beginning and the end of their student teaching experience by the same measuring instrument which the Department of Secondary Education normally uses to rate student teachers. Student teachers are rated both by their college supervisors and by impartial observers not involved in supervision. The impartial observers do not know which student teachers are in each of the four experimental groups.

The Flanders' system of interaction analysis is not only taught to student teachers, but is also used to assess changes in behavior that may take place over the semester. Each student teacher is observed for two hours in the beginning of the semester and for two hours at the end of the semester by a trained observer using the Flanders' system. These observers are not college supervisors and do not know which student teachers are in each of the four experimental groups.

THE OPEN AND CLOSED MIND

Rokeach's Dogmatism Scale is used to measure personality. A discussion of the test construct and validation procedure are available in Rokeach, *The Open and Closed Mind.*[6] The aspect of personality measured by the test is the openness or closedness of a person's belief system.

The Teaching Situation Reaction Test is used to assess student teacher attitudes. In general, this test measures the student teacher's reaction to a classroom situation in terms of the direct-indirect dichotomy. A student teacher with a low score sees himself reacting fairly indirectly to a classroom situation, while a high score indicates a more direct reaction. Hough and Amidon[7] present information concerning the validity of the instrument. They found a high split half reliability between the beginning and end of the student teaching experience.

The Student Perception of Teacher Influence Scale is used to assess the perception that the children have of their student teacher's behavior. The data are gathered on a nine-point scale and are analyzed statistically. This instrument was used initially by Amidon[8] and Anderson[9] with secondary school pupils, and has been adapted for use in the elementary school by Kirk.[10] Both Amidon and Anderson report high reliability for this instrument.

FINDINGS OF THE STUDY

The results of the present study must be interpreted in the light of the early work which was done by Flanders and his associates.

Interaction analysis was developed and refined by Flanders in the early 1950's. The early research on interaction analysis was designed to relate children's attitudes to patterns of teacher behavior. Flanders found that pupils of teachers who were observed to be indirect had more positive attitudes than pupils of teachers who were perceived by observers as being direct. These findings indicated that pupils of indirect teachers were more interested in subject matter and liked the methods used by their teachers better than students of direct teachers.[11], [12]

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[6] M. Rokeach. The Open and Closed Mind. New York: Basic Books, 1960.

[7] John B. Hough and Edmund Amidon. Behavioral Change in Preservice Teacher Preparation: An Experimental Study. Philadelphia: College of Education, Temple University, 1964.

[8] Edmund Amidon and Ned A. Flanders. "The Effects of Direct and Indirect Teacher Influence on Dependent-prone Students Learning Geometry." Journal of Educational Psychology, 52: 286-291, 1961.

[9] John P. Anderson. "Student Perceptions of Teacher Influence." Unpublished Ph.D. thesis, University of Minnesota, 1960.

[10] Jeffrey Kirk. "The Effects of Teaching the Minnesota System of Interaction Analysis on the Behavior of Student Teachers." Unpublished Ed.D. thesis, Temple University, 1964.

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The results of this early research support the validity of interaction analysis as a procedure for predicting the general attitudes of children in a particular classroom.

The next research effort undertaken by Flanders and his associates was designed to determine the relationship between teacher behavior and student achievement. Several large studies were conducted both in a controlled laboratory setting and in normal classroom situations. All of these studies were carried out at the junior high school level and involved the teaching of social studies and mathematics. In the first of these studies, Amidon and Flanders found that dependent-prone eighth grade students who were taught geometry by indirect teaching methods learned more than dependent-prone children taught by direct methods.[13]

In a large scale study, Flanders isolated, for the purposes of analysis, junior high school teachers whose pupils learned the most and the least after a two-week experimental program in social studies or mathematics. Teachers of the higher-achieving classes were found to differ from teachers of the lower-achieving classes in the following ways: (1) they used five to six times as much acceptance of student ideas and encouragement of student ideas, (2) they used five to six times less direction and criticism of student behavior, (3) they talked 10 per cent less, (4) they encouraged two to three times as much student-initiated talk.[14], [15]

Similar results to those found by Flanders between teachers of high-achieving pupils and those of low-achieving pupils were found by Amidon and Giammatteo when they compared 30 superior teachers with 150 randomly selected teachers in elementary schools. The 30 superior teachers were nominated by their supervisors and administrators.[16]

Since all of this research appeared to have implications for teacher education, Flanders instituted an inservice program in which interaction analysis was taught as an observational tool. The inservice program was able to effect observable changes in teacher patterns of verbal behavior. In general, at the end of the experimental inservice program, these teachers evidenced more encouraging and accepting behavior and were less critical and more indirect than they had been at the beginning of the experiment.[17]

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[11] Edmund Amidon and Ned A. Flanders. The Role of the Teacher in the Classroom. Minneapolis: Paul S. Amidon and Associates, 1963.

[12] Ned A. Flanders. Teacher Influence, Pupil Attitudes and Achievement Pre-publication. Cooperative Research Monograph, Cooperative Research Project No. 397, U. S. Office of Education, 1962.

[13] Edmund Amidon and Ned A. Flanders. "The Effects of Direct and Indirect Teacher Influence on Dependent-prone Students Learning Geometry." Journal of Educational Psychology, 52: 286-291, 1961.

[14] Edmund Amidon and Ned A. Flanders. The Role of the Teacher in the Classroom. Minneapolis: Paul S. Amidon and Associates, 1963.

[15] Ned A. Flanders. op cit.

[16] Edmund Amidon and Michael Giammatteo. "The Verbal Behavior of Superior Teachers." The Elementary School Journal, 65: 283-295, 1965.

[17] Ned A. Flanders et al. Helping Teachers Change Their Behavior. U. S. Department of Health, Education and Welfare, Office of Education, Project Numbers 1721012 and 7-32-0560-171.0. Ann Arbor: University of Michigan, 1963.

Kirk conducted a study with student teachers in elementary education in which he taught interaction analysis to an experimental group and compared this group with student teachers who had no interaction analysis. He found that the experimental group talked less, had more pupil-initiated talk, and more often accepted pupil ideas than student teachers in the control group.[18] Zahn found that student teachers who learned interaction analysis developed more positive attitudes toward student teaching than did a control group of student teachers who were not taught interaction analysis.[19]

Little, if any systematic research has been done on the training of supervising teachers to supervise student teachers. However, the recent work of Medley and Mitzel[20] and Zahn[21] does suggest that there is a relationship between the behavior and attitudes of supervising teachers and growth in student teaching. While they found that the effect of the college supervisor on the student teacher was slight, the influence of the supervising teacher and the classroom situation appeared to be great.

RESULTS OF THE STUDY

At this point, much of the data from the first semester of the present study is still not analyzed. However, the direction indicated by the early analysis is significant because of the consistency of the findings.

The major hypothesis compares those student teachers who have learned interaction analysis with those who have been trained in "conventional" learning theory. While the project runs for three more semesters, and much of the data are still not analyzed, a consistent direction in differences is indicated by the findings.

First, in over 85 per cent of the tests of significance, the differences were in the predicted direction. That is, there is a tendency for student teachers trained in interaction analysis to be more accepting, less critical, and less directive than student teachers not trained in interaction analysis.

There are also certain specific areas of the matrix which significantly differentiated student teachers who knew interaction analysis from student teachers who did not interaction analysis. Some of these were as follows:

1. Student teachers who knew interaction analysis talked less in the classroom than those who were trained in learning theory.
2. Student teachers who learned interaction analysis were more indirect in their use of motivating and controlling behaviors than those who were trained in learning theory.

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[18] Jeffrey Kirk. op cit.

[19] Richard Zahn. "The Effect of Cooperating Teacher Attitudes on the Attitudes of Student Teachers." Unpublished paper, 1964. Available from author, Glassboro State College, Glassboro, New Jersey.

[20] Donald Medley and Harold Mitzel. "Measured Changes in Student-Teaching Behavior." Improvement of Student Teaching. Herbert Schueler, Milton Gold, and Harold Mitzel (Editors). U. S. Department of Health, Education and Welfare, Office of Education, Educational Media Branch, Project 730035. New York: Hunter College of the City University of New York, 1957.

[21] Richard Zahn. op cit.

3. Student teachers who were taught interaction analysis were more indirect in their overall interaction patterns than student teachers who were trained in learning theory.
4. Student teachers who were taught interaction analysis used more extended indirect influence than student teachers who were trained in learning theory.
5. Student teachers who were taught interaction analysis used less extended direct influence than student teachers who were trained in learning theory.
6. Student teachers who were taught interaction analysis used more extended acceptance of student ideas than student teachers who were trained in learning theory.

The difference in variances between two groups of student teachers is one of the most interesting brought to light so far. When the student teachers were compared on several variables (indirect-direct ratio, extended use of indirect influence, extended use of teacher acceptance of student ideas, and extended student-initiated talk), the student teaching groups in which student teachers and supervising teachers were both trained in interaction analysis had from seven to fifteen times greater variability than the groups of student teachers who were untrained and whose supervising teachers were untrained. The two groups were also found to differ significantly in the amount of the variables mentioned above. Therefore, the interaction analysis groups not only had significantly more extended indirect influence, more overall indirect influence, and more initiated ideas than the groups of untrained student teachers, but also showed a greater range of individual differences in each of these variables.

The research presented here indicates that student teachers trained in interaction analysis are different from those not so trained. It is the direction of differences which is crucial. Those student teachers trained in interaction analysis have patterns like those teachers in the Flanders study whose pupils achieved more. This research is consistent with results of previous research by Zahn, Furst, Kirk, Hough, and Amidon.

Perhaps the most exciting implication of the results is that for most behaviors the interaction analysis group has greater variability than the non-interaction analysis group. This seems to indicate that when student teachers and their supervising teachers know interaction analysis the student teachers are likely to have a maximum opportunity to develop a wider repertoire of teaching behaviors. Thus, interaction analysis appears to increase the possibilities for the selection of appropriate teaching behaviors in varying situations — and may well increase individuality in styles of teacher behavior.

*The Study of Teaching Behavior by Prospective Teachers**

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The major purposes of direct laboratory experiences are to enable prospective teachers to verify educational principles and to discover additional principles. It seems reasonable to suggest that a systematic study of the linguistic behavior of teachers, made before taking direct laboratory experiences, would facilitate the achievement of these goals. The systematic study we have in mind would prepare students in a number of important ways. It would prepare them to classify teacher statements having similar characteristics into a conceptual system, to judge the effectiveness of such statements in evoking or reinforcing appropriate pupil responses, to anticipate problematic responses from pupils, to postulate promising solutions to these problems, and to develop a set of prescriptive principles which could be used to control teaching behavior.

The course which I shall describe, entitled Problems of the Teacher, is designed to bring about these learnings in prospective teachers. It is a three credit course, meeting six hours weekly for a total of nine weeks. It is followed by nine weeks of full-time student teaching. The students in the course are mostly seniors preparing to be elementary teachers. The course has been organized into four units: (1) classifying teacher statements, (2) analyzing teacher statements, (3) developing prescriptive principles of teaching, and (4) testing inferences.. It should not be assumed that all instructors at Illinois State University are teaching it the same way.

CLASSIFYING TEACHER STATEMENTS

At the end of this unit students will be able to classify statements made by classroom teachers into categories of a conceptual system. All students are given a typescript of a classroom lesson which was previously tape-recorded in an elementary classroom. The typescript is five pages long, single spaced, with lines of 4½ inches in length.

Initial class meetings are used to explain the conceptual system and to train students to use it reliably. There are three functions called major teaching categories which teachers perform according to this classification system. The major teaching categories are Procedural Statements, Substantive Statements, and Rating Statements. Procedural Statements serve the function of making or keeping pupil purposes similar to those of the teacher. Substantive Statements serve the function of helping pupils learn or use subject matter. Rating Statements serve the function of providing pupils with feedback as to the adequacy of their substantive responses.

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* The author wishes to thank his students Steven S. Barrow, Bonnie K. Freeman, and Marjorie L. Marek, the team whose work is cited in this paper.

Teacher statements which have been classified according to functions are further divided into initiatory or reflexive moves. Initiatory moves are determined solely by the teacher's goals. These can be preplanned and resemble the regular frames in a programmed text. Reflexive moves are determined largely by pupil responses to the initiatory moves of the teacher. These cannot be preplanned, and may resemble "branching" frames in a programmed text. Under Procedural Statements the initiatory move is called Activating; the reflexive move is called Maintaining. Under Substantive Statements the initiatory moves are Informing and Cuing; the reflexive moves are Reacting Informing and Reacting Cuing. Rating Statements are all reflexive, and are divided into three categories: Positive, Negative, and Neutral.

Teacher statements which have been classified according to functions and moves are now classified into acts. Initiatory and reflexive moves each have a number of acts into which teacher statements can be classified. For example, teacher statements such as "put away your books," "pass your papers forward," or "get out your pencils," would be classified as an act of giving directions. Some other acts are stating goals, disciplining students, inviting questions, and so forth. The complete classification system used in the course is presented in Table I.

TABLE I

CLASSIFICATION SYSTEM

1. PROCEDURAL (PRO). The teacher develops and maintains a predisposition for learning.
    - 1.1 **Activating** (Act). The teacher makes pupil goals similar to his own.
        - 1.11 teacher gains attention
        - 1.12 teacher gives instruction
        - 1.13 teacher states goals
        - 1.14 teacher poses a problem
        - 1.15 teacher points out importance of goals
        - 1.16 teacher invites pupil to react to goals
    - 1.2 **Maintaining** (Main). The teacher keeps pupil goals similar to his own.
        - 1.21 teacher prevents pupil from moving class in a new direction
        - 1.22 teacher reminds pupil to continue to pay attention
        - 1.23 teacher comments on the cause of unsatisfactory progress
        - 1.24 teacher offers encouragement
        - 1.25 teacher points out progress being made
        - 1.26 teacher invites questions or acknowledges pupil with a question
2. SUBSTANTIVE (SUB). The teacher helps pupil acquire, comprehend, or use subject matter.
    - 2.1 **Informing** (Inf). The teacher tells pupil subject matter to be remembered.
        - 2.11 teacher defines terms
        - 2.12 teacher states facts or generalizations
        - 2.13 teacher explains facts or generalizations
        - 2.14 teacher evaluates a subject

2.2 **Cuing** (Cue). The teacher asks pupil questions requiring a substantive response.
  2.21 teacher helps pupil recall subject matter
  2.22 teacher helps pupil demonstrate comprehension of subject matter
  2.23 teacher helps pupil discover new subject matter
  2.24 teacher helps pupil apply subject matter to problem solving

2.3 **Reacting Informing** (R. Inf). The teacher improves a pupil substantive response.
  2.31 teacher rephrases, or restates pupil response
  2.32 teacher adds new information to pupil response
  2.33 teacher relates various pupil responses

2.4 **Reacting Cuing** (R. Cue). The teacher helps a pupil improve a substantive response.
  2.41 teacher helps pupil to rephrase, or restate response
  2.42 teacher helps pupil add new information to a response
  2.43 teacher solicits additions to a repsonse from other pupils

3. RATING (RAT). The teacher gives an evaluative reaction to a substantive response.

3.1 **Positive** (Pos). The teacher lets pupil know a substantive response is correct.
  3.11 teacher gives an explicitly positive rating (Yes, Right, A good answer)
  3.12 teacher gives a mild or equivocally positive rating (All right, O.K., Uh-huh)

3.2 **Negative** (Neg). The teacher lets pupil know a substantive response is incorrect.
  3.21 teacher gives an explicitly negative rating (No, wrong, That's a terrible answer)
  3.22 teacher indicates a reservation (Yes, but . . . However . . . Nevertheless . . . That's one way of saying it)
  3.23 teacher disagrees with a response (England is not in the Common Market)

3.3 **Neutral** (Neu). The teacher acknowledges a pupil response but does not let the pupil know it is correct or incorrect.
  3.31 teacher gives a positive reaction to part of a response, a negative reaction to another part
  3.32 teacher acknowledges having heard the response without evaluating it (repeats the response)
  3.33 teacher gives an ambiguous evaluation to response (Oh)

Our procedures in the course are as follows: groups of three members are formed; each member classifies a page of the typescript independently; the three members come together to check classifications and resolve differences. This is first done for functions, then repeated for moves, and again for acts. For example, the teacher statement, "Now today we are ready to discuss the Russian Revolution" was classified by a team of students as follows: First, it was classified as a Procedural Statement because it serves the function of making or keeping pupil purposes similar to those of the teacher; second, it was classified as an Activating Statement because it is initiatory, that is, determined by teacher's goals; finally, it was classified as the act of stating goals. A classified page of the typescript is shown in Table II.

TABLE II
EXCERPT OF CLASSIFIED TYPESCRIPT

TEACHER: When you are ready, we will start! (Noise of desks, talk, etc., subsides gradually.)	Pro/Act	1.11
SUSAN: Do we need our books out?		
TEACHER: Just wait and I will tell you what you need.	Pro/Main	1.26
TEACHER: You know, the longer we have to wait, the more time we waste. Do you think it is fair that some of us have to wait for others?	Pro/Main	1.23
BILLY: Sh! Sh!		
TEACHER: All right — Now today we are ready to discuss the Russian Revolution. Jack, what is a revolution?	Pro/Act Sub/Cue	1.13 2.21
JACK: It is when the people are very unhappy and they decide to get rid of the king or something?		
TEACHER: Then what? Bill?	Sub/R. Cue	2.42
BILL: They usually kill the king or czar.		
TEACHER: Yes, / but what causes a revolution?	Rat/Pos Sub/R. Cue	3.11 2.42
SUZY: (Raises hand, teacher nods) Well, like Jack said, people are unhappy and they revolt against the government.		
TEACHER: Oh, / then what happens?	Rat/Neu Sub/R. Cue	3.33 2.42
MARY: There is usually a lot of bloodshed and then probably the new people get to be the people in power.		
TEACHER: and??	Sub/R. Cue	2.42
MARY: They set up their own government.		
TEACHER: What revolutions do we know about?	Sub/Cue	2.21
TIM: We had one!		
BUD: Yeah, we kicked the British out of the colonies!		
TEACHER: All right, / there was an American Revolution. / Do you know of any others?	Rat/Pos Sub/R. Inf Sub/R. Cue	3.12 2.31 2.42
FRED: The French cut off a lot of heads.		
TEACHER: When was that?	Sub/R. Cue	2.42
FRED: When they got rid of their king.		

TEACHER: Okay, / the American, the French, and the Russian revolutions are three examples. Are there any going on now?	Rat/Pos Sub/R. Inf Sub/R. Cue	3.12 2.33 2.42
MARY: Cuba had a revolution a little while ago.		
TEACHER: What about that?	Sub/R. Cue	2.42
MARY: Well, this man Tateeta (teacher corrects — Batista), ah, Batista kept all the money and land and finally there was a revolution.		
TEACHER: Who can tell us more about this?	Sub/R. Cue	2.42
JACK: Castro is the dictator now.		
BILL: He came out of the hills.		
CHARLEY: He looks more like he came out of the trees.		
TEACHER: That's enough of that (glares at Charley). Now, what happened in Cuba? Mary?	Pro/Main Sub/R. Cue	1.21 2.42
MARY: The people were poor and a few men had all the money—so, they started a revolution and threw out Batista, and now Castro runs the country and everything is just as bad as it was.		
TEACHER: You mean nothing good came of the revolution?	Sub/R. Cue	2.41
MARY: Things are worse now, down there.		
TEACHER: Well, maybe, / but the important thing for us at this point is to realize that there was a revolution. So I think I have been hearing you say that revolutions arise when conditions are bad in a country — that the people or some group arms itself and deliberately sets out to gain control of the government of the country. When this happens we say that there is a revolution./ Now, what about the Russian revolution—who knows some facts?	Rat/Neg Sub/R. Inf Sub/Cue	3.22 2.31 2.21

ANALYZING TEACHER STATEMENTS

At the end of this unit students will be able to judge the effectiveness of teacher statements, and will be able to suggest remedial actions which would improve teacher effectiveness. Each team makes a worksheet for each move. All teacher statements which have been classified into the move are entered on the worksheet and grouped according to acts. The teacher statements under each act are analyzed for strengths and weaknesses. Remedial suggestions are made which the team feels would improve the performance of the act.

For example, the teacher statement "Now today we are ready to discuss the Russian Revolution" was entered by a team on a worksheet headed Procedural/Activating. It appears under the act stating goals.

The team judged that stating the topic for discussion would help the teacher get pupil acceptance of goals. This was therefore listed as a strength. However, the team also felt that the statement of goals was incomplete, and therefore listed this as a weakness. Finally, the student team suggested that pupils be told specifically what aspects of the Russian Revolution would be discussed. Table III is an example of a team's worksheet.

PRINCIPLES OF TEACHING

At the end of this unit students are able to formulate prescriptive principles which can be used to evaluate and control teacher effectiveness. They are also able to anticipate the kinds of problematic pupil responses likely to be encountered. Using the worksheets, each team reviews its analysis of teacher statements to formulate prescriptive principles for each initiatory act. Next the typescript is restudied and problematic pupil responses are listed. Problematic pupil responses are those which are followed by a reflexive move or a negative or neutral rating. Prescriptive principles for each reflexive act are formulated.

For example, a student team inferred from its Procedural/Activating worksheet that in gaining attention at the beginning of a lesson, a teacher should give a signal which the pupils have learned means that work is about to begin. They suggested that such a signal might be, "All right, stop what you are doing; put your hands on the desk; and look up here." The team also inferred that in stating goals the teacher tells pupils what behaviors they will be able to perform at the end of the lesson. They suggested that such a statement might be, "At the end of today's lesson you will know why the United States is afraid to rely on promises made by communist governments."

In studying pupil responses, a team listed as problematic pupil behavior the statement by Charlie, "He looks more like he came out of the trees." Charlie's statement threatens to divert the attention of the class from the teacher's goals. Therefore, the teacher must make a reflexive move if he is to continue to keep the class motivated. A second problematic pupil response is illustrated by Jack and Fred who are unable to respond to the Substantive Cues of the teacher adequately. Again, the teacher must make a reflexive move to evoke an adequate response. The team suggested that a prescription for dealing with irrelevant pupil remarks is to use the remark to lead the pupils back to the subject being discussed. He might say to Charlie, "You don't like Castro. Tell us why." When pupils are unable to answer questions, the teacher should ask easier questions about something lower down on the hierarchy of knowledge being explored. He should continue down the hierarchy until he finds the place where the pupils can succeed in giving a correct response. He might say to Jack, "What is the difference between a revolution and a war?" Table IV contains a list of prescriptive principles developed by a student team.

TABLE III

PROCEDURAL ACTIVATING WORKSHEET

ACTS	STRENGTHS	WEAKNESSES	REMEDIAL SUGGESTIONS
1. Gains attention. "When you are ready . . . start!"	O. K., should get attention.	Vague. Doesn't set standards of behavior.	Specify desired behavior. (i.e. "Students, please clear your desks of everything except your books. Sit up straight with eyes front.")
2. States goals. "Today we . . .discuss Russian Revolutions."	O. K., states topic for discussion.	Incomplete statement of goals.	State what aspects of the topic will be discussed. Relate goals to needs and goals of students. (i.e. "Today we are going to discuss the meaning of revolution and the usefulness of past history for interpreting current events. Yesterday we discussed . . . and decided . . .")
3. Gives instructions. "Now, let's work on our projects . . . hour."	O. K., should tell students what to do and time limit.	Wasn't specific enough.	Indicate specific responses you want the students to make. Make limits to commitments for the use of the period. Check for understanding and progress. (i.e. "How many have chosen a topic? Those who have not, check with me; those who have, should form your groups and organize and plan what you are going to do and who is going to do what. Then you can start gathering your information.")

TABLE IV

PRESCRIPTIVE PRINCIPLES

Procedural/Activating.

1.11 Teacher gains attention

I would gain attention by giving a signal which pupils have learned means work is about to begin. For example, "All right, stop what you are doing; put your hands on the desk; and look up here."

1.12 Teacher gives instructions

I would give instructions that state what responses students are to make. For example, "Take out your social studies books, notebooks, and pencils. Let's spend five minutes reviewing chapter one to find out what is meant by the concept 'revolutions.' "

1.13 Teacher states goals

I would tell pupils what actions they will be able to perform at the conclusion of the lesson. For example, "At the end of today's lesson you will be able to explain why the United States finds it difficult to rely on promises made by communist governments."

I would relate goals to the immediate or long range needs of the pupils. For example, "As future citizens you will have a part in deciding foreign policy. Knowing something about how communist governments have acted in the past will help you to make wiser decisions."

TESTING INFERENCES

At the end of this unit students will be able to verify insights gained in the study of the first typescript, and will be able to independently discover new insights. A second typescript is issued to each group, and they repeat the process described above. Teams verify that teacher statements can be grouped into the categories of the conceptual system, that strengths and weaknesses in teacher statements reoccur, that similar problematic pupil responses appear in the second typescript, and so forth. Teams discover new acts that teachers perform, new problems that teachers encounter, and learn new ways that teachers deal with these problems.

Following the completion of the second typescript, the process of verification and addition is continued by having students observe in laboratory classrooms. Each group is assigned to a different teacher in the Metcalf School. Several observations are made, and each observation has a different focus. First, teams focus on Procedural Statements; next on Substantial Statements; finally on Rating Statements. Teams use an observation guide to record data. The guide directs attention to acts performed, problematic pupil responses, and reflexive acts used to solve them. Observations are discussed, and analyzed by the entire class. Again, prescriptive principles are applied and tested against observational data, and new principles formulated.

One final step might be taken in the course, but we have not as yet tried it. Micro-teaching experiences, like those developed at the

Center for Research and Development in Teaching at Stanford University, could be provided. Each student would be given an opportunity to teach a short lesson to one or two pupils to develop competence in one particular teaching function. The student's performance could be recorded on video-tape and immediately criticized by the instructor and other students in the course. The student would then try the same lesson with other pupils until he reached a satisfactory level of performance. When the student succeeded he would move on to a larger group of pupils or to another teaching function.

VALUE OF STUDY OF TEACHING

We believe that students who have been given a conceptual system, and who have systematically used it to study teaching, are better equipped to learn more in less time from direct laboratory experiences. They are better able to discriminate, group, and label what they observe. They can use the conceptual system as a cognitive map to locate and define problems which they encounter in teaching. If they have had experiences analyzing teaching problems in simulated laboratory experiences, they should be better equipped to do the same thing in direct laboratory experiences.

Learning theorists have demonstrated that the amount of learning in a new situation is dependent upon the existing concepts in the cognitive structure of the learner. A person learns more in less time if he has appropriately relevant concepts available to him at the start of a learning experience. Conceptual systems, such as those developed by Bellack, Hughes, and Smith, can provide prospective teachers with ideational anchorage which will enable them to learn more from their direct classroom experiences.

Supervisory Conferences and the Analysis of Teaching

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One of the major tasks of those who prepare teachers is helping the beginner to improve his teaching behavior. The procedure most often used is to observe the teaching of the student teacher and then to discuss his performance with him in a conference situation. Very little is known about the nature of this individualized teaching of student teachers, and about the relationship which may exist between the conference discussion and subsequent teaching behavior.

The student may, in fact, have considerable difficulty in accepting the supervisor's interpretation of his teaching behavior. This is especially true when the college supervisor makes only relatively infrequent visits to the classroom and cannot be fully aware of many of the factors which operate in the particular situation. Even greater difficulty may be experienced, however, when the student attempts to act on the supervisor's suggestions without a clear conception of their implications in terms of specific behavior or without a firm conviction that the recommended procedures are possible or appropriate in the particular situation.

THE SUPERVISORY CONFERENCE

The individualized teaching which takes place in the supervisory conference tends to rely upon giving general, rather than specific, help and upon the subjective, rather than the objective, analysis of performance by student teachers. Emphasis tends to be upon emotional climate in the classroom, on rapport between pupils and student teachers, and on personality factors. Desirable as these emphases are, they have often been disproportionate in relation to other dimensions of the teaching-learning situation. *That practice can be justifiably so characterized is due neither to unwillingness nor lack of concern on the part of those who work with student teachers.* It is clearly due to lack of knowledge of how to work with student teachers on some important dimensions of their teaching.

One such dimension is the verbal teaching behavior of the student teacher, and recent research on teaching has begun to provide tools for analysis of such behavior. The report of the Teacher Education and Media Project of the American Association of Colleges for Teacher Education has suggested that the analytic study of teaching should be an important part of the professional preparation of teachers.

> The analytic approach through concrete material is designed to increase the ability of the prospective teacher to identify the variables involved in teaching. The systematic study of the teaching process and the environment for teaching provides a substantive basis for concept formation.
>
> Behaviorally the prospective teacher should be able to apply aspects of several analytical techniques to a given teaching example and explain or demonstrate the meaning and significance of the concepts identified.[1]

At Teachers College, Columbia University, one aspect of an ongoing research project in the area of student teaching has been concerned with the implications of the use of a system for analyzing verbal teaching behavior in the guidance of student teachers in supervisory conferences.[2]

DESIGN OF THE STUDY

The design of the exploratory study was based upon three major assumptions concerning the student teaching situation and the conditions which influence effective learning. They may be stated as follows:

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[1] Herbert F. LaGrone (Editor), A Proposal for the Revision of the Professional Component of a Program of Teacher Education: A Progress Report of the Teacher Education and Media Project. Washington, D. C.: The American Association of Colleges for Teacher Education, 1964, p. 16.

[2] James K. Canfield, Arlene F. Low and Robert E. Mullin, "A Principles of Learning Approach to Analysis of Student Teachers' Verbal Teaching Behavior," Unpublished Ed.D. thesis, Teachers College, Columbia University, 1965 and Anna Beth Brown, Margaret R. Cobban and Floyd T. Waterman, "The Analysis of Verbal Teaching Behavior: An Approach to Supervisory Conferences with Student Teachers," Unpublished Ed. D. thesis, Teachers College, Columbia University, 1965.

> Student teaching provides significant opportunities for learning effective teaching behaviors.
>
> Ability to analyze one's own behavior can contribute to the ability to make desired changes in such behavior.
>
> The supervisory conference affords an opportunity to help the student plan for changes which he sees as desirable.

The investigators hypothesized that if the student teacher is helped during the supervisory conference to analyze his own teaching behavior and to plan for changes which he sees as desirable, his verbal teaching behavior will provide evidence of changes in the desired directions.

Two teams of three college supervisors in the Preservice Program in Childhood Education at Teachers College were the investigators in the study. One team chose selected principles of learning as the method of analysis. The other team developed a system of analysis which included defined pedagogical moves and cognitive categories. The two studies were parallel in design but were developed and reported independently.

PRINCIPLES OF LEARNING APPROACH

The principles of learning approach used seven statements about the conditions of learning as criteria against which to analyze the record of the student teacher's verbal teaching behavior. The analysis was for the purpose of helping the student to clarify learning principles and to extend his understanding of what principles mean when applied to the guidance of learning. Such knowledge could then be used in making desired changes in the student's verbal teaching behavior. The seven statements concerning learning were:

1. Learning is facilitated when the learner responds actively in the learning situation.
2. A learner's chances of learning are increased when his purposes and those of the teacher are sufficiently similar for him to perceive the relationship.
3. A learner's chances of learning are increased when the material to be learned is meaningful to him.
4. A learner's chances of learning are increased when he can see some possibility of succeeding in the learning task he is attempting.
5. A learner's chances of learning are increased each time he experiences success in a learning task.
6. A learner's chances of learning are increased when he has opportunities for and assistance in the discovery of facts, generalizations, and relationships.
7. Probability of the retention of learned material is increased when the learner practices his learnings immediately, frequently, and in varied situations.

BEHAVIOR ANALYSIS APPROACH

The behavior analysis approach consisted of pedagogical moves and cognitive categories. The four moves — soliciting, structuring, responding, and reacting — were adapted from the Bellack study and were used to describe the interaction.[3] There were two classes of moves — initiatory and reflexive. The cognitive categories classify the intellectual processes which seem to be indicated by the teaching behaviors (moves). The cognitive categories, briefly defined, were as follows.

1. Perceiving, recalling, recognizing
2. Discriminating, comparing, defining
3. Classifying, relating, generalizing
4. Opining, judging, evaluating
5. Inferring, interpreting, applying
6. Facilitating talk (not a cognitive process)
7. Non-codable

In developing the cognitive categories, thought processes of similar order were grouped together into a single cluster or category. Many of the terms found in the other systems were used but there was no attempt to distinguish between behaviors in a particular category. The idea of a hierarchy of cognitive processes was not employed even though there were obvious differences in complexity among the thought processes suggested in the five categories.

The design of the parallel studies included a period of training for the eighteen student teachers involved. At the beginning of the student teaching assignment, a three-day training program provided opportunity for the development of an understanding of the system of analysis which the student was to use and for practice in coding sample typescripts. The use of the system of analysis as a means of improving teaching behavior was also explained and illustrated.

SUPERVISORY CONFERENCES

The investigators developed guidelines for the supervisory conferences which each would have with the three student teachers whom he supervised. They were stated as follows:

1. Both student teacher and supervisor should prepare plans for discussion prior to the conference.
2. The supervisor should try to establish an atmosphere of mutual trust and understanding. He should:
   a. listen to and draw out the opinions of the student teacher.
   b. show respect for the student teacher's ideas.
   c. focus discussion on the teaching situation rather than the person.
   d. give attention to positive as well as negative aspects of the instruction.
3. The supervisor should help the student teacher identify specific areas of concern.
4. The supervisor should help the student teacher select that teaching behavior which he will attempt to change.
5. The supervisor and the student teacher should discuss specific ways of implementing these desired changes in behavior.
6. The student teacher should leave the conference confident of his basic potential as a teacher.

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[3] Arno A. Bellack, Joel R. Davitz, and others. The Language of the Classroom. U. S. Department of Health, Education and Welfare, Office of Education, Cooperative Research Project No. 1497. New York: Institute of Psychological Research, Teachers College, Columbia University, 1963.

7. The focus of the conference should help the student teacher to:
   a. identify, with some exactness, gaps between his aspirations and his actual behavior.
   b. diagnose his teaching to get at reasons for these gaps.
   c. search for better behaviors that give promise of improvement.
   d. plan ways of putting these presumably better actions into practice.
   e. consider ways and means of evaluating the effects of these presumably better actions.

CONFERENCE PROCEDURES

Five teaching sessions were recorded for each student teacher in a nine-week student teaching period. The student and the college supervisor independently analyzed the typescript of each teaching session using either the principles of learning or the behavior analysis approach. Each then prepared a plan for the conference. In the conference, which was also recorded, the student was helped to formulate specific plans for changing aspects of his teaching behavior which he perceived as needing to be improved. These commitments to changed behavior were then noted on the conference plan by the student and his supervisor. Subsequent teaching sessions were analyzed to determine the extent to which the student teacher implemented the commitments made.

Criteria were developed for the identification of commitments in the conference transcripts. A clear statement of intent to act by the student was one category of commitment. At times, however, specific actions were suggested by the supervisor. These were accepted as commitments if they were accepted by the student in a verbal statement, by the volunteering of further behavioral implications of the suggestion, or by including the suggestion on his conference plan sheet under projected "Next Steps." Criteria were also developed in somewhat less detail for identifying the implementation of commitments in subsequent teaching sessions. Both types of criteria were used by independent judges with almost identical results.

OUTCOMES OF STUDY

The outcomes of this investigation of the use of a defined system for the analysis of verbal teaching behavior in supervisory conferences supported the desirability of further study. The student teachers were able to learn and to use the selected system in analyzing their own verbal teaching behavior and most of them perceived the analysis as being of value in the improvement of their teaching.

The students enjoyed using the typescripts as a basis for discussion during conferences and they were all interested in studying and discussing the evidence of their performance as teachers. The concrete and accurate data provided tangible evidence of the verbal interactions in the class sessions and facilitated the students' perceptions of areas of needed improvement. For example, one young teacher was unable to recognize her tendency to use "O.K." as a habitual reaction to all student responses until she saw the term repeated fifteen times on a single page of protocol. Her use of the expression soon decreased markedly.

Acting upon the insights gained from their use of a system of analysis, the student teachers made and implemented commitments to specific acts of verbal teaching behavior. In general, they acted upon suggestions first made by the supervisor as frequently as upon those commitments which they had originally verbalized. The commitments made in each conference tended to become more realistic and fewer in number as the student gained in teaching experience. There was wide variation among the student teachers in the number and type of commitments made and implemented.

The contribution of the study to the preparation of the investigators as future college supervisors and teachers was clearly evident. An investigation which involves six persons in a cooperative enterprise where the success of all is intimately related to the performance of each individual is always a lesson in human relations. When the project represents the final phase of doctoral study and is therefore intimately related to the hopes and goals of each individual, the experience becomes a highly demanding test of the flexibility and integrity of each member of the team. The investigation showed the value of the close collaboration of six very capable investigators and their faculty and student colleagues. Both the quality and the extent of the project were positively influenced by the team approach.

The investigators also gained valuable insights and experience in two other areas. They experienced the step-by-step development of the design for the study from the initial struggle to define their hypotheses in the midst of a maze of intervening variables to the final task of reporting clearly their procedures and drawing relevant conclusions. The extent to which members of the team will engage in subsequent investigations during their professional careers will vary greatly but the ability of all to interpret and apply the results of other studies will unquestionably be greatly increased. A forthcoming report of the problems and advantages of team research as shown by an analysis of the verbal interaction and interpersonal relations during this study will undoubtedly provide a basis for further investigation of this area.

A very important value of the experience for the investigators, however, was the opportunity which it offered for them to study their own verbal interaction in the conferences. It soon became very apparent that there were clear and consistent differences in conference style among the six supervisors. The major characteristics of individual style persisted even though each supervisor was clearly aware of the differences among the three students with whom he worked and made adaptations to those differences. The recognition of the pervasiveness and variety of the differences in teaching style and of the lack of any system for categorizing them or assessing their meaning overshadowed all other outcomes of the study. It became very clear that the influence of a system of analysis on the effectiveness of supervisory conferences could not possibly be assessed until some way was devised to describe and analyze the verbal behavior of supervisors and students in the individualized teaching situation of the conference.

NEXT PHASE

The next phase of the project, therefore, is being devoted to projecting categories of function or role in the supervisory conference, to developing descriptive specifications for each, to testing the descriptive characteristics for validity, and to building models for obtaining and analyzing data on supervisory behavior. Several studies are currently underway in this area. Two investigators have drawn heavily on the literature in counseling psychology and in general supervision to postulate a model of supervisory behavior in the dyad situation which will be validated by using typescripts of conferences already available in the data pool.

A college supervisor has recorded three conferences for each of five supervising teachers and their student teachers. Using the typescripts of the verbal interaction in these fifteen conferences as raw data she will derive descriptive categories and compare the resulting model with that developed for the conferences of the college supervisors. Another investigator will seek information on students' perceptions of the kinds of help they receive on instructional matters through conferences with their supervising teachers and on the influence of feedback to the supervising teachers of such perceptions.

THE TASK AHEAD

In attempting to gain some insight into the effects of using analyses of teaching in the supervisory conference, the exploratory studies seemed to have plunged into the middle of a vast complex of unknown factors and opened the way to the definition of some more fundamental questions. There is reason to believe that the second group of studies may have a similar effect. Certainly, what has been done so far has yielded no clear answers to the questions that were asked. The project is a long way from being able to find and test reasonable hypotheses concerning the relationship between supervisory behavior and subsequent teaching behavior of student teachers. There are many steps that must be taken before the influences of any particular behavior, including analysis of teaching, can be assessed. But such knowledge must be made available if it is ever to become possible to give supervising teachers and college supervisors training in developing effective conference behavior. The end in view seems decidedly worth the effort.

PART IV

The Future

In his paper, Donald Sharpe discusses ways in which institutions can utilize basic research on teaching. He concentrates mainly on the identification of needed areas of research and the use of research in suggesting new approaches in teacher education.

He is most critical of current methods of disseminating research findings. His comments suggest that there is much that remains to be done to develop a research orientation in teacher education.

He cites a number of approaches which would improve the situation and provides a specific case study of one approach being used at Indiana State University. The use of research on teaching in the study of teaching by prospective teachers and the use of research by those responsible for building new teacher education programs are interwoven in the plan described.

Sharpe strikes a challenge to the teaching profession by asking it to keep the control of educational research in the public domain. He brings this point home when he states that education is too important to entrust to any one group, be it an individual profit-making concern or a great non-profit foundation. He recognizes that many new forces are involved in the interaction system of education.

In Sharpe's view, it is the profession's responsibility to take the lead in developing new directions in teacher education.

The Uses of Research on Teaching: Implications and Recommendations

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As I began to consider the implications of the use of research on teaching, I talked with and listened to any colleague who would give me his time. I searched out many research-oriented persons and I must admit I became more confused and frustrated with each such conference. We talked about the vast area of ignorance about teaching and the limited amount of verified truth. We identified hundreds of questions which need to be answered and even phrased a few hypotheses which need to be tested. But I could not find any way to bring these ideas into an integrated, meaningful relationship. I was almost ready to agree with Conant that there is little relevant theory ("scientific generalizations") which has predictive value for the teacher-to-be.

However, most of my discussions with colleagues, in one form or another, included the following rationale: the absence of a scientific base for teacher education should not deter us from trying to establish one. Although our present theory is fragmentary and our evidence incomplete, if we are to spend time and energy in preparing teachers, we must continually search for the "scientific generalizations" which are relevant to teaching. As we discover enough of these generalizations we can then weave them into a viable theory which could lead to a unique discipline of pedagogy. Lacking this, we must continue to prepare teachers on the basis of the research we have, even though it represents incomplete evidence.

PROBLEMS OF DISSEMINATION AND APPLICATION OF RESEARCH

The problem of bridging the gap between basic research and practice is one which has plagued society since civilization began. Bringing about change is almost a discipline in itself but it, like education, is one about which we know little. One of my first ventures into research was to discover how school superintendents achieved curriculum change. In 1940 I selected from the educational literature of the preceding three years twenty widely-heralded programs of curriculum reorganization and wrote to the director of each program to learn how he had accomplished it. Twelve of the twenty replies were made by some other individual who stated that the curriculum director was no longer there and that the experimental program had been abandoned. I received no replies for six school systems and only two made any attempt to explain how they had accomplished the change.

Again I must admit considerable pessimism about our ability to induce change when I search for evidence of the impact of the Citizenship Education Project some twelve years after its ambitious inception.

I am not speaking heresy when I say we should be devoting even more energy to the application of research to teaching than we do to basic research. Calvin W. Taylor reports that the military, business, and agriculture spend ten times as much money on development — making research findings bear upon practice — as they do on basic research.[1]

The concept of the Regional Research and Development Laboratory draws heavily upon the pattern used by agriculture. The history of the great impact of research in agriculture shows that the first step was to identify basic research findings together with their implications. The second step was to do applied research and develop studies necessary to turn the findings into something understandable and manageable. The third step was to demonstrate, teach, pursuade, and provide materials and apparatus necessary. This included providing specially trained people and technical specialists located in agricultural communities.

Soon after the Association for Student Teaching established the Commission on Implications of Recent Research on Teaching, I wrote to the great foundations asking for financial support to bring together the researchers and the practitioners. The responses were polite but negative. Fortunately, there are many dedicated people who continue to work on this problem. Perhaps the Regional Research and Development Laboratory will reflect an interest in the developmental phase of research which, so far, has been ignored by the United States Office of Education.

My first point, then, is that the profession must establish a mechanism for the dissemination of research findings. It can not depend upon the traditional means of publication and individual study of the literature. In this connection, the developer or disseminator needs the kind of recognition that is being accorded the researcher.

During my graduate study I became acquainted with a professor who saw his role as the implementor of ideas. He claimed to have little scholarly ability but he could communicate and so he became prosperous as a writer of education books for elementary teachers. In his case, society rewarded him handsomely and he maintained his personal integrity. If the profession is to effectively utilize the current research on teaching, I doubt if the initiative can be left to an individual who chooses to compete in the publishing market place.

Research must be usable if it is to be justified. Let me identify three reasons why research on teaching is not used:

1. Teachers are unaware of it.
   They simply lack knowledge of what it known. With the explosion of

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[1] Calvin W. Taylor and others. "Bridging the Gap Between Basic Research and Educational Practice," National Education Association Journal. 51: 23-25, January 1962.

knowledge —even knowledge about teaching—it is impossible for an individual to keep up with the new developments.

2. Researchers fail to communicate.
   As more teachers receive some training in research methodology, they will become better prepared to communicate with the scholar. However, the researcher has a responsibility to adapt his findings to the language of the practitioner. The reports of research are often in such technical and abstract terms that the layman is unable to interpret or apply them.
3. Teachers refuse to accept it.
   a. Teachers find personal security in the familiar. The power structure in the schools is not oriented toward the use of research. If a teacher is to use the results of research he may find it necessary not only to devise new strategies and techniques but also to actually reorder his whole system of values.
   b. The preparation of teachers has failed to convince them that there are scientific generalizations which apply to teaching. Traditionally, teachers consider themselves autonomous. In some cases they mistakenly interpret the principle that each man has a right to his opinion as meaning that one man's opinion is as good as another's. The concept of academic freedom is improperly used to justify poor performance. As we become able to identify the elements of good teaching, the teacher will come to discover that he is not a free agent—free to ignore what has been learned about teaching.
   c. Teaching is such a complex act and so few areas of teaching have been adequately researched that most practitioners prefer to view it as an art and choose to ignore any scientific aspects of teaching.
   d. A further complicating factor is that teaching effectiveness depends upon the situation in which it occurs and the learners to whom it is directed as well as the technical skills of the teacher.

Attention must be paid to these and other reasons why the findings of research are not adequately used.

THE USES OF RESEARCH ON TEACHING

The purpose of research on teaching is to improve teaching. To accomplish this it must have an impact upon the teacher. This impact can occur in any of the formative experiences of the teacher—his experiences as a pupil, his experiences as a student of teaching, and his experiences as a teacher. What is learned about teaching should reshape the content of the professional component of teacher education. It should also have an impact upon the teachers in the field who have completed their formal education.

Recently I shared responsibility for providing eighty Peace Corps volunteers bound for Sierra Leone, Africa, with two weeks' training in the science of teaching. When I asked myself what we know, positively, about teaching, I was greatly disturbed. We know a lot about learning—we know the importance of motivation and reinforcement. We know a lot about children—the importance of success, the influence of peers. But we know too little about what the teacher does—how he achieves the motivation, how he provides reinforcement, how he achieves empathy. I am afraid that the Peace Corps volunteers were not too impressed with what we had to offer them. The fact is that we do not have an adequate body of verified principles to provide a solid base for teacher education.

I should not imply that nothing is being done to disseminate the findings of research. Nor do I discount the great body of research in the behaviorial sciences. The Educational Research Association publishes its findings and conducts significant meetings. Most of the professional organizations have a committee on research. The American Association of Colleges for Teacher Education has an active committee on studies. The Association for Student Teaching has both a committee and a commission. The *Journal of Teacher Education's* regular feature "With the Researchers" and "Research Clues" which appears in the *NEA Journal* inform their readers of relevant studies. Educational conferences, workshops, and meetings serve as forums and stimulators. University journals and publications make a contribution to the dissemination of learning and one must not ignore Education courses — both undergraduate and graduate. While this listing sounds impressive, the uncoordinated effort has at least four basic weaknesses.

> First, the audience for each is very restricted. The people who staff the classrooms are seldom reached.
>
> Second, there is so much research published that no one person can become familiar with all that is relevant to his needs.
>
> Third, the research is of such uneven quality that the practitioner becomes confused and tends to ignore it. Some things labeled research do violence to the elementary principles of research design. Others are so technically written that they can not be understood.
>
> Fourth, the practitioner does not have the skills, the facilities, nor the time to devise ways of using the research. Too many researchers refuse to point out to the teacher how his findings might have implications for teaching.

A RESEARCH PROJECT ON STUDENT TEACHING

Meux and Smith point out that

> teaching behavior may be studied at different levels, depending upon the purpose to be served by the inquiry. Perhaps the most elementary form of inquiry is called "natural history." At another level of investigation, an effort is made to discover the correlates of a given phenomenon. Inquiries of this kind are usually referred to as correlation studies. They are, typically, studies of static relations — studies requiring no deliberate variation of conditions. There have been many studies of teaching behavior done mainly in order to find ways of identifying and predicting effective teaching. At a third level of analysis, the determinants of teaching behavior become the objects of inquiry. Rigorous studies at this level proceed by hypothetico-deductive methods wherein definitions and postulates become the logical bases of the hypotheses to be tested experimentally.[2]

As a demonstration of a new approach at bringing meaning to research on teaching, I would like to describe briefly a project we have under way at Indiana State University. To my mind, this project represents a combination of basic research and the application of research.

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[2] Milton Meux and B. Othanel Smith, "Logical Dimensions of Teaching," Contemporary Research on Teacher Effectiveness. Bruce J. Biddle and William S. Ellena (Editors). New York: Holt, Rinehart and Winston, 1964. p. 128.

It seems to me to contain all three levels identified by Meux and Smith.

We are trying to determine whether or not reliable judgments of student teacher performance in the classroom can be made by college supervisors using criteria drawn from contemporary research on teacher behavior.

The first task was to agree upon the criteria by which student teachers may be evaluated. Research on teacher behavior has suggested that certain criteria on an actuarial basis are related to teaching success. This study proposes to determine if such criteria can be applied on a clinical basis to individual student teachers. The criteria tentatively agreed upon have been incorporated into a form called Student Teacher Performance Profile (STPP).

Each member of the staff studied available research on teacher behavior, teaching skills, and teacher evaluation and contributed to consensus on the criteria to be included in the evaluative instrument. The nine criteria represent the staff's judgment of what researchers have found promising. They constitute an instrument for applying on a clinical basis what researchers found to be discriminating on an actuarial basis.

Each member of the staff shared in developing operational definitions and illustrations of each criterion, and in the formulation of guidelines for making the observations. This material is incorporated into a "Guide for Assessment of Secondary Student Teacher Performance (Tentative)." The training of the observers was also a cooperative enterprise. It consisted of group analysis of anecdotal records of classroom performance, the analysis of films and kinescopes of teaching, and small group observations of classroom teaching.

This project will limit its evaluative aspects to actual teacher performance in the classroom. This is not to imply that other qualities are not important in evaluating a teacher. It does mean that we will eliminate insofar as possible subjective judgments about intangible qualities and concentrate on observable performance.

Let me state the nine criteria and identify the research from which they grew. Criteria I, II, and III are actually Ryan's X, Y, and Z factors. Students are placed on a seven-point scale ranging from a high of 1 to a low of 7.

Criterion I	Understanding, Friendly	vs.	Egocentric, Aloof
Criterion II	Planned, Organized, Responsible	vs.	Unplanned, Disorganized, Irresponsible
Criterion III	Stimulating, Imaginative, Surgent	vs.	Dull, Routine, Unimaginative
Criterion IV	Perceives Self as Competent	vs.	Perceives Self as Less Than Adequate

(Criterion IV grows out of the work of Combs and some of the ideas of Bills.)

Criterion V	Has Mastery of Facts and Organizing Principles of Field	vs.	Has Only Minimum Knowledge of Field
	(Criterion V is related to the work of Broudy, Smith and Burnett and that of Jerome Bruner.)		
Criterion VI	Communicates Well and Empathetically	vs.	Communicates Ineffectively and Perfunctorily
	(Criterion VI grows out of communicative theory and specifically the work of B. O. Smith and Ennis.)		
Criterion VII	Classroom Discourse Characterized by Reasoning or Creative Thinking	vs.	Classroom Discourse Characterized by Simple Recall
Criterion VIII	Tests Value and Truth by Logical Analysis	vs.	Accepts Value and Truth Uncritically
	(Criterion VII and VIII are directly related to the work of B. O. Smith and his associates in the study of logic of teaching.		
Criterion IX	High Professional Potential	vs.	Low Professional Potential
	(Criterion IX represents a global judgment.)		

The Guide for Assessment of Secondary Student Teacher Performance describes procedures for observing, rating, recording, and reporting. It includes, in addition to general discussion of the criteria, pertinent references and descriptions of specific teacher behavior to be recorded.

We have devised some intermediary instruments for use in analyzing student teacher classroom behavior but we are trying to avoid collecting the great volumes of protocol material which characterized the original research of Smith, Bellack, or Medley and Metzel. We are not sure we can do it. This first phase of our project seems to me to be one of field-testing research.

If we find we can make reliable judgments about student teacher performance, we plan to examine experimentally a number of ways of observing student teachers under a variety of conditions. This second phase of our project qualifies as basic research. The third phase of the project will be concerned with determining the relationships which exist between the assessments made using the criteria identified above and other prognoses, records, test scores, and evaluations which are characteristically used by a college to describe a student teacher.

We feel that this project provides for the study of teaching at the three levels identified by Meux and Smith. At the "natural history" or descriptive level we are observing and recording behavior. At the correlation level we are comparing the judgments of student teacher performance with other data about the student. Finally, we are examining experimentally a number of ways of observing student teachers. Our field test has been encouraging although I must add that the infrequency with which we find any effort on the part of the student teacher to "consciously call attention to the logical operations of thinking" is most discouraging. We are finding support for the pessimistic observation Dewey made in *Philosophy and Civilization* when he said,

> A genuine energetic freedom will manifest itself in a jealous and unremitting case for the influence of social institutions upon the attitudes of curiosity, inquiry weighing and testing of evidence. I shall begin to believe that we care more for freedom than we do for imposing our own beliefs upon others in order to subject them to our will, when I see the main purpose of our schools and institutions is to develop powers of unremitting and discriminating observation and judgment.[3]

SUGGESTIONS AND CONCLUSIONS

I know it is much easier to point out weaknesses than to suggest remedies — a task to which I feel inadequate. However, these suggestions may be in order:

1. Basic research on teaching must be expanded. It should move on from the "natural history" or descriptive phase and the correlational phase to the cause and effect phase. Such studies could well lead to readjustments in educational theory as well as educational practice.
2. The various groups, organizations, and institutions should assume some responsibility for screening out shoddy research. They might even assume responsibility for identifying some hierarchical order of research in terms of its significance and its use. I am not rejecting the ultimate authority of the free market place of ideas — that truth is best pursued by the uncoursed consensus of the informed — but the practitioner in the school needs some help in selecting those researches which he will study. The Teacher Education and Media Project of the AACTE seems to be a step in this direction.
3. A new service needs to be established in the educational profession — that of the implementor of research. We need someone to do for education what the county agent did for agriculture. Regional educational laboratories may be a step in this direction.
4. The dissemination of research on teaching must remain in the public domain. Some commercial concerns and individual interpreters have moved into this area. I don't think it should be done by a profit-making organization.

The danger of conflict between profit and education is too great. Education in America is largely a public concern and its control and direction must remain with the people. There is too much at stake to entrust the future of education to any one group, be it an individual profit-making concern or a great non-profit foundation. I must admit that I have been impressed by some of the reports published by the Croft Educational Services, such as the letter which translates research into action and other enterprises in education — perhaps the public sector of our society can copy some of their techniques.

Lest I be misunderstood, let me specifically recognize that there are many qualities other than pedagogical skill necessary for successful teaching. These include mastery of subject matter, mental health, a democratic value system, and desirable attitudes. These are important elements in a good teaching situation. But they are the product of the individual's total development.

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[3] John Dewey. Philosophy and Civilization. New York: Minton, Balch and Co., 1931. p. 297.

It is my personal opinion that teacher education will only become a professional discipline when we develop a science of pedagogy. The first step is to recognize that such a discipline does not yet exist but that we can, through basic research on teaching and the diligent application of research to practice in teacher education, contribute to its creation.

Conference on Implications of Recent Research on Teaching For Teacher Education

Sponsored by
The Association for Student Teaching
and
The College of Education
University of Rochester

January 8, 1966

Program

Saturday, January 8, 1966

8:00 Registration and Coffee
Cutler Union, Prince Street Campus

8:50 Welcome to the Conference
William Fullagar
Dean, College of Education
University of Rochester

8:55 Conference Orientation; Purposes of AST Commission
Dean Corrigan
Professor, University of Rochester

9:00 STUDIES OF TEACHING AND THEIR IMPACT ON FUTURE DEVELOPMENTS IN TEACHER EDUCATION
Henry J. Hermanowicz
Professor, Illinois State University

9:45 Reactionnaire
Catherine Broderick
Asst. Superintendent for Instruction
City School District, Rochester, N. Y. and
Donald Cruickshank
Professor, State University College, Brockport
Questions and Answers
Conference Participants

10:15 Coffee Break

10:30 RELATING THE STUDY OF TEACHING TO OTHER DIMENSIONS OF TEACHER EDUCATION: A PROPOSAL
Martin Haberman
Professor, University of Wisconsin

11:15 Reactionnaire
Paul Lamb, Professor
State University College at Potsdam and
David J. Mullen, Dean, George Peabody College, Nashville, Tenn.
Questions and Answers
Conference Participants

12:00 Lunch

1:00 DESCRIPTIONS OF ACTION PROGRAMS WHICH FOCUS ON THE SYSTEMATIC STUDY OF TEACHING: USING INTERACTION ANALYSIS AT TEMPLE UNIVERSITY
Edmund J. Amidon
Professor, Temple University
THE SYRACUSE INTER-UNIVERSITY PROJECT I PROGRAM
Thomas Clayton
Professor, Syracuse University
THE TEACHERS COLLEGE PROGRAM
Dorothy McGeoch, Professor
Teachers College, Columbia University
THE ILLINOIS STATE UNIVERSITY APPROACH
Morton Waimon
Professor, Illinois State University

2:00 Reactionnaire
Frank Broadbent
Professor, State University College, Brockport
John Chaltas
Director of Instruction, Glencoe, Illinois; and
Charles Scruggs
Professor, State University College, Geneseo
Questions and Answers
Conference Participants

2:30 Break

2:45 THE FUTURE USES OF RESEARCH ON TEACHING: IMPLICATIONS AND RECOMMENDATIONS
Donald M. Sharpe
Professor, Indiana State University

3:15 Reactionnaire
Conference Participants

3:30 Adjournment

The Study of Teaching Bibliography

This bibliography has been assembled from several sources: (1) a bibliography on "The Nature of Teaching" prepared by Louise Berman for the University of Wisconsin-Uhrig Foundation Conference, Milwaukee, Wisconsin, October, 1962, (2) a bibliography published in the Classroom Interaction Newsletter, Vol. 1, No. 1, compiled by Anita Simon and Edmund Amidon, at Temple University, Philadelphia, Pennsylvania, December, 1965, and (3) a bibliography on "The Study of Teaching" compiled by the AST Commission on the Implications of Recent Research on Teaching for the Association for Student Teaching — University of Rochester Teacher Education Conference, Rochester, New York, January, 1966.

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